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ABSTRACT

The 13 chapters in this book depict the challenges facing African nations in their efforts to develop their technical and vocational education (TVE) systems. Chapter 1, "TVE in Africa: A Synthesis of Case Studies" (B. Wanjala Kerre), presents a synthesis of the case studies in which the following major trends taking place within the existing socioeconomic context are discussed: TVE within existing educational structures; cooperation between TVE institutions and enterprises; major challenges facing the nations in their efforts to develop TVE; and the innovative measures undertaken in response to the problems and constraints experienced. The remaining 12 chapters are individual case studies giving a more detailed picture of natural efforts and challenges encountered in the development of TVE. Chapters 2-8 focus on the role of TVE in educational systems: "TVE in Cameroon" (Lucy Mbangwana); "TVE in Congo" (Gilbert Ndimina); "TVE in Ghana" (F. A. Baiden); "TVE in Kenya" (P. O. Okaka); "TVE in Madagascar" (Victor Monantsoa); "TVE in Nigeria" (Egbe T. Ehiametalor); and "TVE in Zimbabwe" (N. N. Munetsi). Chapters 9-13 address policy and legislation in TVE to enhance cooperation with the world of work: "Education, Training, and Employment in Burkina Faso" (Joseph Kabore); "Cooperation between Training Institutions and the Industrial Commercial and Agricultural Enterprises in Cote d'Ivoire" (Aska Kouadio); "Relationship between TVE and Enterprises in Senegal" (Oumar Sock); "Cooperation between TVE Institutions and Enterprises in Swaziland" (B. S. Mndebele, L. B. Lukhele); and "TVE in Uganda" (E. Lugujjo, B. Manyindo). (YLB)

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UNESCO UNEVOC

International Project on Technical and Vocational Education

Projet International pour l'enseignement technique et professionnel

# THE DEVELOPMENT OF TECHNICAL AND VOCATIONAL EDUCATION IN AFRICA

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# THE DEVELOPMENT OF TECHNICAL AND VOCATIONAL EDUCATION IN AFRICA :

## CASE STUDIES FROM SELECTED COUNTRIES

UNESCO REGIONAL OFFICE
DAKAR, SENEGAL

# PREFACE

In conformity with UNESCO's Programme and Budget for 1994-195 and within the framework of UNESCO's International Project on Technical and Vocational Education (UNEVOC), the African Regional Office (BREDA) has closely worked with Member States in the region to promote the development of technical and vocational education.

In 1993-1995, case studies have been undertaken in both the English and French speaking countries in the Africa region. The case studies focused on two major areas of growing importance importance in technical and vocational education. One is the "Role of Technical and Vocational Education in Educational Systems" ; the other is "Policy and Legislation in Technical and Vocational Education to enhance co-operation with the World of Work".

The case studies undertaken included those of Ghana, Kenya, Nigeria, Swaziland while those from the Cameroon, Congo, Côte d'Ivoire, Madagascar and Senegal. These data from Guinea-Bissau and Cape Verde were also collected. These case studies are representative samples of countries in the above and other zones of Sub-Saharan Africa. The similarities in their structures and administrative set-ups are greater than their differences. The problems and constrainsts which exist are also similar in many respects.

This publication is aimed at facilitating the achievement of UNESCO's goals through its international Project (UNEVOC) which include, inter alia, fostering the international exchange of ideas, experiences and studies on policy issues, and facilitating access to data bases and documentation.

The first chapter presents a synthesis of the case studies in which major trends taking place within the existing socio-economic context are discussed. These include : technical and vocational education within existing educational structures ; cooperation between TVE institutions and enterprises ; major challenges facing the nations in their afforts to develop TVE and the innovative measures undertaken in response to the problems and constrainsts experienced. The following chapters are individual country case studies giving a more detailed picture of natural afforts and challenges encountered in the development of TVE.

In the final chapter, the authors take the challenge to suggest, in a more comprehensive manner, some strategies in response to the problems and constrainsts raised in the preceeding chapters.

This comprehensive publication, depicting the challenges facing the African nations in their efforts to develop their technical and vocational education systems and the wide spectrum of national policies and innovative measures undertaken to meet these challenges, provides interesting insights and alternative strategies for policy makers, educational planners, researchers, and employers. It is also a worthy contribution of reading materials for students and lecturers in this scarcely researched and published field of education.

We are indeed grateful to the Member States for their active participation in this project, and wish to thank the following authors of the case studies, upon which this synthesis is based:

1. Aska, Kouadio ; Côte d'Ivoire
2. Baiden, F. A. ; Ghana
3. Ehiametalor, E. T. ; Nigeria
4. Lugujjo, E. and Mayindo, B. ; Uganda
5. Manatsoa, Victor ; Madagascar
6. Mndebele, C. B. S. and Lukhele, L. B. ; Swaziland
7. Munetsi, N. N. M. ; Zimbabwe
8. Ndimina, G. ; Congo
9. Okaka, Peter O. ; Kenya
10. Sock, Oumar ; Senegal
11. kaboré, Martin ; Burkina Faso
12. Mbangwana, Lucy ; Cameroon

Finally we thank Dr. B. Wanjala Kerre, UNESCO's Consultant, for the editorial work of this publication.

The views expressed in this report are those of the individuals concerned and do not necessarily reflect those of UNESCO.

Pai OBANYA
Director
UNESCO Regional Office
Dakar, Senegal

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# TECHNICAL AND VOCATIONAL EDUCATION IN AFRICA : A SYNTHESIS OF CASE STUDIES

# CHAPTER 1

# TECHNICAL AND VOCATIONAL EDUCATION IN AFRICA : A SYNTHESIS OF CASE STUDIES

*B. Wanjala KERRE*[*]

## INTRODUCTION

### *The Socio-Economic Context*

The spirit of independence that swept through the African continent in the early 60s heralded a new era that saw a phenomenal expansion in Education and an increased demand for available goods and services. Improvement in health care, lead to higher population growth which in turn, put pressure on the demand for education, food, health services, housing, transportation and other needs.

Over the past three decades, Africa has had to face new challenges in both the political and the socio-economic contexts. There is hardly any country that has not been affected by these new challenges. The impacts and influences on education and training in general and on technical and vocational education and training in particular have been tremendous.

Most African countries today are still characterised by the following :

a ) Fast growing populations, mainly within 3 % range, most of which are composed of youth. For example 48 % of Uganda's population is under 15 years of age and 20 % being children under 5 years. This implies a heavily dependent population.

b) Most populations are rural based, between 70 and 90 %, mainly depending on subsistence farming. In urban areas most people are engaged in crafts and manual labour.

c) Most African countries have fragile political systems some of which have in the past adversely affected economic and social activities. In the current political democratization process, more are still threatened with civil strives that are ethnically or religiously motivated.

d) The world economic recession experienced over the past decade found African economies most vulnerable. Combined with prevalent economic malaise at home, most countries experienced high rates of inflation, frequent devaluation of national currencies, and high interest rates, all of which adversely affected the growth of business and industry, and eroded the purchasing power of the people.

The above situation has lead to :

a ) a decline in enrollments in both education and training institutions ;

b) falling standards in education and training ;

---

c) a steady decline in employment opportunities in the public and private formal sectors; and

d) a rising tide of the unemployed and underemployed.

In Cameroon for example, Tchombe (1994, p. 24) shows that enrollment in TVE dropped from 93,651 in 1987/88 to 90,028 in 1990/91. Similar trends are revealed in other African countries. In Zimbabwe for example (table 1 a and b) enrolment dropped severely from 32.75 % in 1981 for Primary and 67.10% in 1984 for Secondary to 4.02 in 1991 for Primary and 6.72 in 1993 for Secondary.

The situation in Kenya is similarly discouraging (table 2 a & b) where very minimal gain is recorded in Primary level enrolments from 1989-93 i.e. 1.4 %. At Secondary level the drop was more drastic from a total enrolment of 640,735 in 1989 to 621,443 in 1992 i.e. 0.03%.

In Senegal the contribution of private institutions to education is much higher particularly for girls as depicted in table 3. It is even more true for enrolments in TVE colleges.

Table 1 * (a): **Growth of Primary Education since Independence in Zimbabwe**

| YEAR | Nber OF SCHOOLS | GROWTH % | Nber OF PUPILS | GROWTH % | Nber OF STAFF | GROWTH (%) |
|---|---|---|---|---|---|---|
| **1980** | 3,161 | ....... | 1,235,994 | ...... | 28,455 | ...... |
| **1981** | 3,698 | 16.99 | 1,715,169 | 38.77 | 37,773 | 32.75 |
| **1982** | 3,880 | 4,92 | 1,907,225 | 11.20 | 45,467 | 20.37 |
| **1983** | 3,960 | 2.06 | 2.044,487 | 7.20 | 52,502 | 15.47 |
| **1984** | 4,161 | 5.08 | 2,231,304 | 9.14 | 54,086 | 3.02 |
| **1985** | 4,234 | 1.75 | 2,216,878 | -0.65 | 56,619 | 4.68 |
| **1986** | 4,297 | 1.49 | 2,265,053 | 2.17 | 58,257 | 2.89 |
| **1987** | 4,439 | 3.30 | 2,251,319 | -0.61 | 57,120 | -1.95 |
| **1988** | 4,471 | 0.72 | 2,212,103 | -1.74 | 57,762 | 1.12 |
| **1989** | 4,504 | 0.74 | 2,219,171 | 0.32 | 58,370 | 1.05 |
| **1990** | 4,530 | 0.58 | 2,119,865 | -4.47 | 60,886 | 4.31 |
| **1991** | 4,559 | 0.64 | 2,294,934 | 8.26 | 58,436 | -4.02 |
| **1992** | 4,569 | 0.22 | 2,305,765 | 0.47 | 59,874 | 2.46 |
| **1993** | 4,578 | 0.20 | 2,436,671 | 5.68 | 60,959 | 1.81 |
| **1994** | 4,611 | 0.72 | 2,476,575 | 1.64 | 63,085 | 3.49 |

*From Munetsi, N.N.M. (1995) Country Case Study on Technical and Vocational Education in Zimbabwe,*
*UNESCO/BREDA*

Table 1 (b) : **Growth in Secondary Education since Independence**

| YEAR | Nber OF SCHOOLS | GROWTH (%) | Nber OF PUPILS | GROWTH (%) | Nber OF STAFF | GROWTH (%) |
|---|---|---|---|---|---|---|
| **1980** | 197 | ...... | 74,321 | ......... | 3,730 | ........ |
| **1981** | 694 | 252.28 | 148,690 | 100.06 | 4,874 | 30.67 |
| **1982** | 738 | 6.34 | 225,647 | 51.76 | 6,033 | 23.78 |
| **1983** | 790 | 7.05 | 316,438 | 40.24 | 8,808 | 46.00 |
| **1984** | 1,182 | 49.62 | 416,413 | 31.59 | 14,718 | 67.10 |
| **1985** | 1,215 | 2.79 | 482,000 | 15.75 | 17,315 | 17.65 |
| **1986** | 1,276 | 5.02 | 537,427 | 11.50 | 19,487 | 12.54 |
| **1987** | 1,395 | 9.33 | 604,652 | 12.51 | 21,981 | 12.80 |
| **1988** | 1,484 | 6.38 | 641,005 | 6.01 | 23,598 | 7.36 |
| **1989** | 1,502 | 1.21 | 695,882 | 8.56 | 24,547 | 4.02 |
| **1990** | 1,512 | 0.67 | 672,658 | -3.34 | 25,487 | 3.83 |
| **1991** | 1,515 | 0.20 | 710,619 | 5.64 | 25,204 | -1.11 |
| **1992** | 1,517 | 0.13 | 657,344 | -7.50 | 25,792 | 2.33 |
| **1993** | 1,518 | 0.07 | 635,202 | -3.37 | 24,058 | -6.72 |
| **1994** | 1,521 | 0.20 | 679,416 | 6.96 | 25,597 | 6.40 |

From Munetsi N. N. M. (1995) *Country Case Study on Technical and Vocational Education in Zimbabwe,*
UNESCO (BREDA)

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Table 2 (a)* : **Growth in Primary Education, 1989-1993 in Kenya**

| Year | Nber of Schools | Enrollments Boys | Girls | Total | Nber of Teachers Trained | Untrained | Total | % Untrained |
|---|---|---|---|---|---|---|---|---|
| **1989** | 14,691 | 2,766,000 | 2,623,300 | 5,389,300 | 114,087 | 49,522 | 163,609 | 30.3 |
| **1990** | 14,864 | 2,766,300 | 2,262,000 | 5,392,300 | 121,461 | 51,656 | 173,117 | 29.8 |
| **1991** | 15,196 | 2,797,100 | 2,659,000 | 5,456,100 | 129,229 | 44,141 | 173,370 | 25.5 |
| **1992** | 15,465 | 2,806,800` | 2,723,400 | 5,530,200 | 135,405 | 40,954 | 176,359 | 23.2 |
| **1993*** | 15,902 | 2,832,695 | 2,633,322 | 5,466,017 | 142,517 | 32,531 | 175,048 | 18.6 |

* As at April, 1993

Table 2(b) : **Growth in Secondary Education in Kenya**

| Year | Nber of Schools | Enrollments Boys | Girls | Total | Nber of Teachers Trained | Un-trained | Total | % Un-trained |
|---|---|---|---|---|---|---|---|---|
| 1989 | 2,654 | 383,135 | 257,695 | 640,735 | 17,139 | 10,917 | 28,05§ | 38.9 |
| 1990 | 2,678 | 353,695 | 264,766 | 618,461 | 19,431 | 11,190 | 30,621 | 36.5 |
| 1991 | 2,647 | 345,788 | 268,373 | 614,161 | 24,471 | 10,626 | 35,097 | 30.2 |
| 1992 | 2,632 | 355,097 | 266,364 | 621,443 | 27,447 | 9,113 | 36,560 | 24.9 |

Source : Economic Survey, 1993 and Ministry of Education
* From Okaka, P. (1993) *A Country Case Study on Technical and Vocational Education in Kenya*, UNESCO (BREDA)

Table 3 : **School Enrollments for Senegal 1992-1993**

| LEVEL | Nber of schools | Nber of schools | Enrollment | | | |
|---|---|---|---|---|---|---|
| | | | **Boys** | **Girls** | **Total** | **% Girls** |
| **Pre-primary school education** | 192 | 582 | 8877 | 8715 | 17592 | 49,54 |
| **Public** | 64 | 223 | 3499 | 3443 | 6942 | 49,6 |
| **Private** | 128 | 366 | 5378 | 5272 | 10650 | 49,5 |
| **Elementary school** | 2454 | 11910 | 424540 | 314020 | 738560 | 42,52 |
| **Public** | 2244 | 10330 | 384452 | 282488 | 666950 | 42,36 |
| **Private** | 210 | 1580 | 40078 | 31532 | 71610 | 44,03 |
| **Middle school** | 293 | 2776 | 87026 | 49042 | 136068 | 36,04 |
| **Public** | 145 | 1885 | 66531 | 33051 | 99582 | 33,19 |
| **Private** | 148 | 891 | 20495 | 15991 | 36486 | 43,83 |
| **General secondary school** | 66 | 1050 | 30922 | 15248 | 46170 | 33,03 |
| **Public** | 33 | 851 | 27025 | 12329 | 39354 | 31,33 |
| **Private** | 33 | 199 | 3897 | 2919 | 6816 | 42,83 |
| **Technical College** | 19 | 195 | 4766 | 2535 | 7301 | 34,72 |
| **Public** | 11 | 160 | 4147 | 1833 | 5980 | 30,65 |
| **Private** | 8 | 35 | 619 | 702 | 1321 | 53,14 |

*Source : Ministry of Education , Senegal*

### *Human Resource Development*

The rapid expansion felt across African States shortly after their independence was basically due to the demand for education as a right and as a result of concerted efforts in its democratization. There was also a higher level commitment from the international community to assist the new nations in self governence. The thrust was for more literacy and academic knowledge to take over from the colonial administration.

A decade later, it dawned on most States that liberal education alone was not sufficient. The school curriculum was no longer relevant to the needs of new nations. They required, besides administrators and clerical officers, a cadre of qualified scientific and technological manpower to take over and develop the nation's productive capacities. Political independence without the capability and capacity to provide the nation with necessary goods and services such as food, housing, health care, transportation and communication, left the new Nation States still chronically dependent on developed nations and donnor agencies. In an effort to overcome this situation most countries reviewed their educational systems resulting in major changes and innovations.

In Kenya, for example, a new system of education, popularly known as 8.4.4., was introduced in 1985. It was a result of several national education commissions conducted since 1964. It embodied the new vision of vocationalizing the school curriculum after discovering that society had been disillusioned by the previous system of education that was mainly academic. The new system included changes in the structure where primary education would take 8 years, secondary education 4 years and a basic university degree 4 years (Kenya, 1984; Okaka, 1993).

Similarly Nigeria and Ghana also reviewed their educational systems and came up with new structures (6-3-3-4) comprising of 6 years of primary education, 3 years junior secondary, 3 years senior secondary and 4 years university education. (Ehiametalor, 1993; Baiden, 1993). Uganda is reviewing its educational system and has proposed a structure of 8-3-2-3 system which is still under debate (Lugujjo and Manyindo, 1993).

The Francophone countries of Africa have also experienced similar dilemas in general education and have instituted reviews on similar lines.

In this respect, it can be noted that National Fora on Education which brought changes into educational contents and at times structures were organized in French-speaking countries. Thus in Senegal a national forum on education and training in 1981 advocated among others.

Concerning structures, three levels :

- a 13 year basic education cycle including preschool education from 3 to 6 years and 10 year compulsory polyvalent education ;
- a 3 year secondary and vocational education ;
- a variable duration for higher education and research cycle.

Concerning contents, three main innovations :

- introduction of national languages into educational systems without ever giving up French;
- polytechnical orientation of programmes ;

- introduction of religious education into the curricula respecting all freedoms guaranteed by a secular state.

Concerning qualitative objectives : priority is given to full schooling of children from 7 to 12 years by the year 2000 ; this will lead to an educational demand for other levels which should be planned in order to be met.

In the Central African Republic, a national forum on education and training was held in June 1994. It defined educational and training contents and structures. In addition to preschool, levels of education are as follows :

- Basic (primary) education I, 6 years
- Basic education II (Junior Secondary Education) 4 years Senior General and Technical Education 3 years.

Burkina Faso, Gabon Chad and Cameroon also held national fora on education and training. Other countries took the opportunity of National Sovereign Conferences (Chad, Benin, Congo, Niger, Togo, Gabon and Zaire) to decide on the orientations and structures of their educational systems.

Structures are in general similar and concern the following cycles :

| | | |
|---|---|---|
| Primary | - | 6 years |
| Junior Secondary School | - | 3 years |
| Senior Secondary School | - | 3 years |
| Basic University Degree | - | 4 years |

Some variations include 7 years to 8 years of Primary education and 4 to 6 years of Secondary education in some countries as shown in table 4.

A common feature underlining educational reforms in Africa is the introduction and expansion of technical and vocational education in the general school curriculum. This is due to the increased realization of the importance of technical and vocational education in national development.

### *Role of Technical and Vocational Education in National Development*

In the Human Development Report of 1994 the United Nations Development Programme (UNDP) underscores the UN's lifelong commitment to engage in a battle for peace on two fronts : the security front to secure freedom from fear and the economic and social front where victory means freedom from want. The latter is inestricably linked to job security. (UNDP, 1994 p. 3).

Since the mid 1960's, as well exemplified by the situation in Ghana, Kenya, Senegal, Cameroon and several other African States, the paradox of "too many people looking for jobs and too many jobs unfilled" has baffled many planners and policy makers. There is a growing number of the unemployed among the educated while there is, at the same time, a persistent shortage of vocational and technical skills in many areas of the economy.

There is already a major mismatch between available trained manpower and the type of employment opportunities in the world of work. The problem is summarized in box 1 below by the Swazi Government.

Box 1 : **Swaziland Government Policy Statement**

"All available information suggests that there exists a demand/supply disequilibrum with respect to trained people and the type of available employment opportunities. The disequilibrum varies according to level and type of skill. Thus, manual workers and those qualified for clerical positions will be oversupplied while scientific and technical professional will be undersupplied during the coming decade. In order to offset this problem. Government is committed to an appropriate expansion of postsecondary facilities which includes both an expansion of University facilities to accommodate the more highly qualified Swazi school leavers, and the creation of opportunities to pursue more technical and vocational subjects through institutions such as Vocational and Commercial Training Institute-Matsapha and Swaziland College of Technology." *

**From Mndebele, C.B. and Lukhele, L.B. (1993), pp. 116-117.*

Most countries have recognized that a pool of skilled manpower in essential sectors like agriculture, construction, manufacturing, transportation, communications and commerce, for example, is critical to national development. It is through technical and vocational education and training that such manpower can be obtained. Various studies carried out by the World Bank and educational researchers have shown that investment in TVE is worthwhile no matter what the economic status of the country may be. This is increasingly becoming even more important with rapid technological changes impacting the world of work today. Whilst developed nations have been challenged to "retool" (retrain) their work force, the developing nations are greatly challenged to provide relevant training amidst changing work requirements and environments.

Box 2 : **The importance of TVE**

A country's technical and vocational training system is a decisive factor determining the competitive strength and level of development of its economy. The education and training system, is largely determined by the country's socio-cultural, economic, demographic and technological development. Technological progress changes the needs of industry and commerce; economic development influences the resources needed to maintain and improve the training programmes; social development changes the climate of the labour market at local, national and regional level and demographic changes influence the supply of skilled manpower on labour market and the rate of recruitment of trainees in the technical and vocational training education system.

The level of competence of a country's skilled workers and technicians is centrally important to the flexibility and productivity of its labour force. Skilled workers and technicians enhance the quality and efficiency of product development, usage, production and maintenance, and they supervise and train workers with lesser skills. The development of a skilled labour force makes an important contribution to national development. It is able to apply science and technology for transformation of materials into goods and services. A knowledgeable and capable skilled workforce is therefore the secret to economic success and national development. For example, fully proficient technicians and tradesmen ought to know how to handle a range of new types of equipment and understand the properties of new materials.*

** From Lugujjo, E. and Manyindo, B., (1993)*

## TVE IN THE NATIONAL EDUCATION FRAMEWORK

### *TVE in the Education Structure*

An overview of educational structures in selected countries reveals common features as well as differences (See Appendix 1)

Most countries offer 9 years of basic education which include 6 years primary and 3 years junior secondary level education (See table 4). Secondary education is offered in two phases i.e. junior and senior levels each comprising three years for Ghana and Nigeria whilst Congo, and Senegal offer 4 years lower secondary and 3 years upper secondary level education. Uganda, Kenya and Swaziland offer slightly different structures. The duration to obtain basic university degree also varies from 3 years in Congo, Uganda and Swaziland to 4 years in Ghana, Nigeria and Kenya.

In Cameroon two systems of education exist with two different sets of structures, programmes and examination practices. The Anglophone system is based on a 7-5-2 system (i.e. 7 years of primary school, 5 years of first cycle secondary school and 2 years of high school). The Francophone system is based on a 6-4-3 system (6 years of primary school, 4 years of first cycle secondary school and 3 years of second cycle secondary school). In both systems the duration of study in technical colleges is the same where entrants from primary level take a 4-3 year programme (i.e. 4 years first cycle and 3 years second cycle).

These variations in both Francophone and Anglophone countries are reflected in the total years of schooling, which range from 16 to 17 years to obtain a University degree.

Table 4 : **Duration of Study at each level of Education in selected African countries**

| COUNTRY | Primary level | Secondary level | | University | Total |
|---|---|---|---|---|---|
| | | Junior & | Senior | | |
| Burkina Faso | 6 | 4 | + 3 | 4 | 17 |
| Cameroon* | 6 (French)<br>7 (English) | 4<br>5 | + 3<br>+ 2 | 3<br>3 | 16<br>17 |
| Congo | 6 | 4 | + 3 | 3 | 16 |
| Côte d'Ivoire | 6 | 4 | + 3 | 4 | 17 |
| Ghana | 6 | 3 | + 3 | 4 | 16 |
| Kenya | 8 | 4 | | 4 | 16 |
| Madagascar | 6 | 4 | + 3 | 4 | 17 |
| Nigeria | 6 | 3 | + 3 | 4 | 16 |
| Senegal | 6 | 4 | + 3 | 4 | 17 |
| Swaziland | 7 | 3 | + 3 | 3 | 16 |
| Uganda | 7 | 4 | + 2 | 3 | 16 |
| Zimbabwe | 7 | 4 | + 2 | 3 | 16 |

* *Cameroon offers two separate systems. One for the French speaking Region and the other for the English speaking Region.*

*Source : UNESCO (BREDA) Country Case Studies*

Of major interest in the education structures, is the manner in which technical and vocational education is linked into the formal education system. Except for a few cases e.g. Swaziland where those pursuing a vocational track will be dead ended in their further education in training, most systems have attempted to link up various lower levels and types of education and training to higher levels. Some of those best articulated include Ghana, Kenya, and Senegal.

Diagrams may not, however, reflect the realities of implementation. It is known for example that in as much as we may wish to see it happen, an artisan or craftsman will not find it easy to go to university. They must have extra drive and link or support programmes must be in place to make up for what theory was lost when the individual pursued a 90 % practical curriculum. Graduates of Polytechnics in many systems find it difficult to get admission in regular universities most of which only recognize the academic track from the secondary school level.

For Francophone countries graduates of technical institutes (Lycées Techniques) have more opportunities to proceed to undergraduate degree programmes in technical fields. Graduates of vocational training institutes (Lycées Professionnels) usually proceed to the world of work (BREDA, 1994).

It is also noted that fewer countries have alternative TVE Programmes for those who discontinue primary education for various reasons.

Most national policy frameworks call for the integration of technical and vocational education in the general curriculum in order to offer each learner an opportunity to be exposed to the basic skills demanded in the world of work. However, the obvious dichotomy between TVE and general education in some of the structures would be detrimental to the close relationship envisaged.

While academic inability on the part of some of those who join the TVE Programmes should not be defended wholesome, it should not be used as an excuse to justify some of the highly selective mechanisms used to apportion the limited places often available at secondary or tertiary levels of education and training.

### *Objectives of TVE*

The purpose and objectives advanced for technical and vocational education in a given country delineate the scope within which TVE is to be developed and implemented. An overview of the case studies presented here clearly indicates the uniformity of purpose and agreement in several objectives.

Most countries have stated in one form or another the general objective of technical and vocational education as follows :

> To provide, alongside general education, knowledge and skills in technical and vocational fields in order to meet national manpower requirements in agriculture, business, industry and other technical services.

*Specific Objectives :*

The specific objectives of TVE commonly shared include the following :

1. To expose pupils at the basic education level to a wide range of practical activities in order to make them familiar with and to stimulate their interests in vocational subjects so as to give them equal opportunities to choose their future careers.
2. To facilitate the interpretation, application and translation of basic knowledge and understanding of fundamental facts and principles of scientific processes and techniques to be able to produce and use tools and labour-saving devices for productive work.
3. To inculcate an appreciation of the dignity of human labour as an invaluable resource base.
4. To equip students with relevant productive and entrepreneural skills that will prepare them for gainful employment or self employment.
5. To provide skilled labour to march the demand for manpower in the scientific, technological and commercial sectors of the nation's economy.
6. To refine and consolidate indigeneous artistic and technological skills in order to produce products of aesthetic and cultural value.
7. To impart skills necessary for the protection, utilization and conservation of environmental heritage.
8. To increase scientific and technological literacy among youth thus fostering a proper understanding of the intricacies of modern technological advancement.
9. To encourage the equal access and participion of girls and women in technical and vocational education.
10. To provide a sound foundation for further education and training in the spirit of lifelong learning.

### *Legislation of Technical and Vocational Education*

The importance accorded to TVE in a given society is reflected in the existing legislation establishing it. It can be observed that legislation dealing with technical nd vocational education in most countries came into effect much later after the promulgation of the Education Acts. Technical and vocational education may have been mentioned as was the case with the Ashby Commission of Nigeria in 1960 and in the Kenya Education Act in 1968 but effective policy implementation was to come much later on.

Vocational training, however, was well recognized as proven by the establishment of Vocational Training Act in Ghana (1970), Kenya (1971), Uganda (1979), Swaziland (1982), Zimbabwe (1978). There was a clear demarcation between vocational education and vocational training then.

After it became obvious that the educational systems adapted from the colonial systems were mainly academic leading to mass production of unemployable school leavers, various changes were introduced as each country reviewed and reformed its educational system. Most of these changes came in the 1980s and the 1990s.

In Nigeria, the National Policy on Education of 1981 effected in 1982 laid emphasis on technical and vocational education in the restructured (6-3-3-4) school system. In Kenya, a series of educational review committees culminated into the 8-4-4 school system in 1985. The curriculum was vocationalized and technical and vocational education was expanded beyond the normal school curriculum. A new Ministry responsible for post school vocational education and training was established in 1988 and a new vision for TVE articulated in a sessional paper on "Manpower Development for the Next Decade and Beyond in 1988. In 1984 Zimbabwe replaced the 1978 Vocational Training Act with a Manpower Planning and Development Act. The Act moved to the Ministry of Higher Education in 1988 from the Ministry of Labour Planning and Social Service. In 1994 the Act was revised to include the Administration of Teacher Education.

Ghana's constitution of 1992 through articles 25 and 38 reviewed its education system and revitalized technical and vocational education. This was further complemented by the Polytechnic law (1992) PNDCL, 317 which established polytechnics as tertiary level institutions.

Swaziland set up a National Education Review Committee which established a Special Committee in 1990 to study prevocational education. As a result of the committee findings, the Government has proposed the provision of a diversified, competency based curriculum to expose students to vocational subjects in agriculture, home economics, business and technical studies. (Mndebele and Lukhele, 1993).

In Uganda an Education Review Commission (EPRC) submitted to the Government a White Paper on technical and vocational education in 1992. The paper called for the restructuring of education to include technical and vocational education from primary to tertiary levels. It called for the integration of TVE and business education as well as equiping technical training institutions with modern tools and equipment.

An analysis of the evolution of education in Congo from 1960 underlines important steps towards the implementation of an educational policy with more or less well defined features. All of these characteristics are the will to promote democratic access to education.

In 1965, all schools were nationalised and put under state control. From 1970 to 1977 the background document *l'Ecole du Peuple* was produced.

In 1991 *la Conférence Nationale Souveraine* the "Souvereign National Conference" was held which confirmed the failure of "l'Ecole du Peuple" the Peoples School and initiated several steps to reorientate the educational system. These were:

- the promotion of the technical and professional training by reforming the programme and adapting it to the socio-eonomic context ;
- the active participation of socio-economic partners in the development of education ;

- the creation of a state secretarial technical training.

In Senegal, reference is made to the legislation and to the following steps since 1970 :

- The Orientation Law of National Education of 1971 was the first law on national education and training in Senegal. It tries at once to assign to technical and professional training the target population of this training.

***The Orientation Law of 1991***

The recommendations of CNREF have led to the adoption of the orientation law for education of February 1991. This law includes, among others, two major innovations aiming at systematising a permanent basic education and a better oriented technical and professional training. Thus this was conceived the national and permanent education to serve the Senegalese people. It aims completely and definitively to eradicate illiteracy as well as the professional improvement and social promotion of all citizens by improving the living and employment conditions and increasing the productivity of the worker.

This new law takes into consideration various activities at the primary level with the objective of promoting manual work and introducing children to technical activities.

In Burkina Faso, reglementary texts in preparation are inspired by the political position statement of the Action Programme of the popular Front (professional and computer training being emphasized), the Five Year Development Plan 1991-1995 (priority to food and agricultural self-reliance, industrial development, implementing a National Fund for Employment), the programme of broad unity for Development and Democracy "the content and form of education corresponding to the present realities of our country are those which will put the emphasis on the diversity of professional training and are adapted to the socio-economic system needs, the mastering of agricultural techniques and agro-pastoral services, the mastering of water and technical services related to it, the management and marketing sciences, the health and education sciences, the computer sciences as well as all the areas that address the essential needs of the socio-economic fabric", and more recently the statement of President Blaise COMPAORE of June 2nd, 1994. On the basis of reviews from 1992 to 1994 of the various educational systems.

*Administration of Technical and Vocational Education*

Responsibility for TVE at the policy level is clearly manifested in existing legal and constitutional frameworks. However, administrative responsibility at the institutional level is very much diversified and varies from one country to the other. This diversity is mainly due to the uniqueness of comprehensive technical and vocational education. Three distinct features mainly account for it :

i) The educational component which is formal that is taught in the school curriculum.

ii) The training component which is provided in both formal and informal training institutions.

iii) Nonformal and informal TVE offered by Non-governmental Organizations, private proprietors, religious organizations etc.

The situation in Ghana, Zimbabwe and Kenya can illustrate this observation. In Ghana the Ministry of Education is responsible for General Education, Polytechnics, Technical Teacher Education Colleges and the Institute of Professional Studies. The Ministry of Employment and Social Services is responsible for the National Vocational Training Institute (NVTI) and Integrated Community Centre for Employable Skills (ICCES) while the Ministry of Transport and Communication is responsible for Ghana Technical Training Centre. Other technical and vocational training programmes are offered in different ministries and departments including the office of the Head of the Civil Service, Ministry of Agriculture and the Ministry of Health.

In Zimbabwe, school-based technical and vocational education is administered by the Ministry of Education, Culture and Sports while the administration and supervision of technical colleges is the responsibility of the Ministry of Higher Education.

In Kenya, the Ministry of Education is only responsible for the formal school curriculum including primary, secondary and teacher education colleges for these levels. The bulk of the technical and vocational education and training programmes are offered in institutions such as Youth Polytechnics, Technical Training Institutes, Institutes of Technology, National Polytechnics, Technical Teacher Training Colleges and National Industrial Vocational Training Centres (NIVTC) all of which fall under the Ministry of Research, Technical Training and Technology (MRTTT).

Other Ministries including Agriculture and life stock ; Health ; Communications and Lands and Settlement do have their own departmental schools catering for their specific training needs. There is a growing number of private schools and colleges offering various TVE programmes.

In most Francophone countries, the Ministry of Education has the overall responsibility for formal education including technical and vocational education. However some technical and vocational training programmes are run by other Ministries.

It is quite obvious that with increased demand for occupational training and the escalating cost of training, there is a need to harmonize the provision of TVE to avoid duplication and wastage that is currently going on. Harmonization will further enhance quality and relevance with appropriate certification.

### *Financing*

Technical and vocational education and training programmes are expensive to run compared to general education. It has been estimated that the cost of one technical school is equivalent to two or three schools offering general education. Previously, Governments undertook total responsibility to finance TVE with some assistance from donor agencies.

Today the situation is becoming more difficult as governments are faced with difficult choices to cut back spending in education which has, on an average, been taking up to as much as 40 % of the national budget in some countries. Since most Afrian countries depend heavily on foreign aid and mainly from the World Bank and the International Monetary Fund (IMF), the Structural Adjustment Programmes imposed by these institutions have adversely affected the financing of TVE as well.

In this review, Ghana, Nigeria and Uganda have indicated that their Governments still shoulder the entire cost for public TVE programmes. Other countries except Kenya have not shown any alternative arrangements yet.

The Kenyan government introduced a cost-sharing policy in 1988 when it called upon the communities, parents, and beneficiairies of TVE to assist the Government in raising additional funds to accelerate the expansion of training opportunities to increase access without compromising quality and relevance. Educational and Training Institutions at all levels have been challenged to engage in various fund raising activities including the installation of production units, farming and the provision of consultancies to business and industry.

Similarly, Senegal, Côte d'Ivoire and Madagascar and Zimbabwe have introduced cost-sharing policies in their educational systems.

Côte d'Ivoire has introduced a training levy fund in which enterprises contribute 1.2 % of their salary payments for employees run by the Fonds National de Régularisation (FNR). Enterprises can use O.5% of their contribution to offer training for their own employees. The balance goes for training in small enterprises and individual cases where proposals have been submitted and approved.

As a result of the Structural Adjustment Programme, Cameroon has created the National Employment Fund (NEF) with the following objectives :

- To put together the offers and requests for employment ;
- To make available information on employment opportunities ;
- To give adequate information on job market to job seekers ;
- To support those who wish to be self-employed or create enterprises.

The resources of NEF come from African Development Bank ADB, the World Bank, the trainers (15% of training cost), the enterprises involved in the co-funding of the Employment Diploma Programme and the NDGS.

In Senegal, as in all the other countries, the financing and regulation of technical and professional training have been assured a primary place by the State.

Apart from the State other resources come from international aid, the NGOs and mostly the enterprises. The enterprises annually pay to the State a tax called a lump sum contribution for the employers (CFCE). 6% of the CFCE is used in the National Office for Professional Training. (ONFP) NOPT for its functioning and its training activities. This 6% amounts approximately to 300 million CFA.

A study is presently being undertaken for the creation of a Fund for Technical and Professional Training financing.

All these initiatives indicate the great concern of various states to have reliable financing mechanisms for technical training at all levels.

It is very unlikely that more funding for TVE will be available in the foreseable future. It is incumbent on all African States currently heavily dependent on foreign aid to explore, more vigorously into alternative ways of financing their education and training programmes.

### *TVE in the School Curriculum*

The extent to which credibility is given to national policy on TVE in the school system depends on the types of subjects offered and the status they are given in the curriculum. If they are not introduced early enough and if they are merely optional then both learners and society at large will not take them seriously.

Kenya seems to be the only country that offers a wide range of TVE subjets at the primary school level (see Table 5). These include : Agricultue, Art, Art and Craft, Business education, home science and music. Ghana offers agriculture and life skills at the basic education level. Other countries do not seem to focus on TVE at the basic education level.

At the Secondary School level, it can be observed (table 5) that a wide range of technical vocational education subjects are offered in each country. Whilst Kenya has the subjects singled out and offered as electives (only one out of 8 subjects) for the final examination, Ghana offers clusters of what is referred to as basic technical skills and vocational skills. Nigeria offers what it describes as technical, vocational and business programmes.

The TVE subjects in the school curriculum in most African countries still reflect the traditional courses that are geared toward imparting skills in a particular trade without much regard for technological changes that have impacted the world of work. As can be observed in table 5, such courses as woodwork, metalwork, electricity, home science and building construction are heavily trade oriented and one would not have adequate time out of a 35 minutes lesson in school to cover its basics. Further more, even the training of carpenters can no longer be sufficiently based on wood planing, jointing and finishing alone. Modern furniture production combines a variety of skills and materials.

Table 5 : **Technical and Vocational Subjects offered at Primary and Secondary level**

| **Primary level** | **Ghana** | **Kenya** | **Nigeria** | **Uganda** | **Swaziland** | **Cameroon** | **Congo** | **Côte d'Ivoire** | **Madagascar** | **Senegal** |
|---|---|---|---|---|---|---|---|---|---|---|
| Agric | x | x | | | | x | | x | | x |
| Art | | x | | | | | | | | |
| Art & Craft | | x | | | | x | | | | |
| Busin Educ. | | x | | | | | | | | |
| Home Scien | | x | | | | x | | | | |
| Music | | x | | | | | | | | |
| Life Skills | x | | | | | | | | | |
| **Sec. level** | | | | | | | | | | |
| Agric | x | x | x | x | x | x | | x | x | x |
| Art & design | | x | | | | | | | | |
| Draw & Design | | x | | | | x | x | x | x | x |
| Tech. draw. | x | | | | | x | x | x | x | x |
| Busin. educ. | x | x | x | x | x | x | x | x | x | x |
| Build const. | | x | x | | | x | x | x | x | x |
| Electr. | | x | x | x | | x | x | x | x | x |
| Electronics | | | x | x | | x | x | x | x | x |
| Metal works | | x | x | x | x | x | x | x | x | x |
| Plastic | | | x | | | | | | | |
| Power Mech | | x | | | | x | x | x | x | x |
| Auto mech. | | | x | | | x | x | x | x | x |
| Wood work | | x | x | x | x | x | x | x | x | x |
| Life skills | x | | | | | | | | | |
| Basic tech. skills | x | | | | | | | | | |
| Vocat. skills | x | | | | | | | | | |

Some countries like Nigeria, Ghana and Kenya are now focussing on development of technology education in the school curriculum to give wider coverage to the technical subjects for most learners thus leaving vocational training (trade specialization) for the post-school and non formal training institutions.

The goals and objectives of TVE in the school curriculum are, however, more general and of an orientational nature at the lower (primary level) while emphasizing exploration at the secondary level. Occupational specialization is mainly recommended for post secondary level training. In practical terms, strong demarcations still exist in some systems where TVE is offered mainly in special technical schools as is the case with Uganda. In other cases where TVE exists alongside general education, they are still provided on two different

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tracks. In such cases the less academically able students are often advised to take the technical vocational line.

### *TVE at the Tertiary Level*

Technical and vocational education at the tertiary level is usually offered to those who have completed secondary level education. It comprises of a wide range of courses offered in technical training institutes and Polytechnics (EVT). The technical institutes offer craft and technician courses while Polytechnics often offer technician and diploma programmes at a higher level. There are proposals for some Polytechnics to start degree programmes in TVE.

In Francophone countries, "Ecoles Supérieures Polytechniques" are some of the best and highest technical institutions for training higher level technical manpower. Cameroon established Institutes of Technology in three National Universities in 1993. Existing universities in several African countries do offer degree programmes in vocational fields such as agricultural education, business education, home economics education, music and art but these have not been widely acknowledged as vocational education programmes. At present there are a few universities in Africa such as Moi University in Kenya and the University of Malawi, which offer B.Ed degrees in Technology Education meant for Secondary School teachers of technical subjects. There are other forms of vocational training particularly at the artisan and craft levels for industry and in other cases there are apprenticeship programmes which are coordinated by the Directorate of Industrial Training e.g. in Uganda and Kenya.

### *Teacher Education*

Teacher preparation for TVE is carried out at both Technical Colleges and Universities even though TVE programmes in universities are relatively newer.

In the past, TVE teacher education was conducted in one of the National Polytechnics. Today the trend is moving toward providing graduate teachers by instituting TVE teacher education programmes at the University level. This will go a long way in enhancing the status of TVE as teachers can now compete favourably for career opportunities with their counterparts. Given the demand for technical and vocational teachers in all educational and training programmes, the current production is quite insufficient. Trainers of TVE teachers in most countries usually go to universities overseas for training. The lack of qualified teachers and instructors has contributed to the growing gap between education and the world of work.

Box 3 : **TVE Teachers Training Colleges and Universities in some Countries**

| **Teacher Education for TVE**<br>Country | **Teacher Training Institutions** |
|---|---|
| **Ghana** | Advanced Technical Teachers College, Kumasi<br>University College of Education, Winneba<br>University College of Cape Coast |
| **Kenya** | Kenya Technical Teachers College<br>Kenyatta University<br>Moi University<br>Egerton University |
| **Nigeria** | University of Benin<br>Ahmadu Bello University, Zaria<br>University of Nigeria, Nsukka<br>University of Science and Technology, Port Hartcourt |
| **Uganda** | Uganda Polytechnic<br>Institute of Teacher Education, Kyambogo |
| **Swaziland** | Swaziland College, Technology<br>University of Swaziland<br>(Pre-vocational Agriculture Teachers) |
| **Zimbabwe** | Gwern Technical College<br>Belvedre, Technical Teachers College<br>Chinhoyi Technical Teachers College |
| **Cameroon** | ENIAET-Grade II Tech. Teachers<br>ENIET Grade I Tech. Teachers |
| **Congo** | ENSET - Higher Tech. Teacher College |
| **Côte d'Ivoire** | Institut Pédagogique National de l'Enseignement Technique et Professionnel (IPNETP) |
| **Gabor** | Ecole Normale Supérieure de l'enseignement technique et professionnel (ENSETP) |
| **Guinée** | Ecole Normale Secondaire de l'Enseignement Technique |
| **Senegal** | Ecole Normale Supérieure de l'Enseignement Technique et professionnel (ENSETP) |

### *Girls and Women In TVE*

In Africa the traditional roles of men and women in all spheres of life are still heavily reinforced. The situation is even more pronounced in rural areas. This is reflected in education and the work place. Girls and women are still marginalized in TVE as depicted in the illustrations from Kenya, Nigeria and Swaziland (see tables 6, 7, 8.)

In Kenya, closer examination of girls enrollment in TVE examinations reveals a heavy traditional bias for agriculture and home economics with very few enrollments in the traditionally male oriented technical areas such as building construction, power mechanics, metal work and wood work. Similarly enrollments of girls in apprenticeships and vocational training centres as depicted in tables 7 and 8 continue to reinforce the traditional trends i.e. enrollment in such trades as fashion, secretarial studies, sewing, hair dressing, etc.

The situation is even worse when we look at the enrollments and performance of girls in TVE final examinations at the Senior Secondary level in Burkina Faso. In table 9a we observe that not a single girl enrolled for machine shop and electronics, while the only girl who enrolled for electrical work could not pass part 2 of the exams. However, more girls

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enrolled in secretarial and commercial courses through private studies and continuing education (see Table 9b).

Table 7 : **National Open Apprenticeship Scheme, Edo State, Nigeria**

| TRADE | RECRUITMENT FROM INCEPTION TO DECEMBER, 1995 | | |
|---|---|---|---|
| | Male | Female | Total |
| **Fashion** | 995 | 1,206 | 2,201 |
| **Secretarial Studies** | 1,105 | 1,055 | 2,160 |
| **Hair Dressing** | - | 751 | 751 |
| **Furniture Making** | 964 | - | 964 |
| **Auto-Mechanic** | 656 | - | 656 |
| **Auto-Electrician** | 695 | - | 695 |
| **Electronics** | 604 | - | 604 |
| **Refrigerator and Air Conditioning** | 605 | - | 605 |
| **Printing** | 215 | - | 215 |
| **Art and Sign** | 155 | - | 215 |
| **Panel Beating** | 125 | - | 125 |
| **Shoe Making** | 121 | - | 121 |
| **Music** | 155 | 61 | 216 |
| **Total** | **6,395** | **3,073** | **9,468** |

*Source : National Directorte of Employment, Benin City, 1994 from Ehiametalor (1995)*
*A Country Case Study in Technical and Vocational Education in Nigeria, UNESCO (BREDA).*

Table 8 : **Manazini Industrial Training Center Enrollment, 1990/91, Swaziland**

| COURSE | Trainee | |
|---|---|---|
| | Male | Female |
| Agriculture | 9 | 7 |
| Building | 28 | 0 |
| Carpentry | 21 | 0 |
| Electrical Repairs | 10 | 0 |
| Metal Work | 20 | 0 |
| Motor mechanics | 21 | 1 |
| Panel Beating/Spray Painting | 9 | 0 |
| Plumbing | 6 | 0 |
| Printing | 4 | 5 |
| Sewing | 0 | 28 |
| Upholstery | 5 | 3 |
| Upgrading trainees to Trade Test | **133** | **44** |
| Grade II level | 14 | 0 |
| **Total** | **147** | **44** |

Source : Mndebele, C and Lukhele L.A. (1993) *A Country Case Study in Technical and Vocational Education in Swaziland* UNESCO (BREDA).

Table 9a : **Final Baccalauréat (Senior High School) Results in TVE in Burkina Faso (1992)**

| | | F1 Machine Shop | | | | F2 Electronics | | | | F3 Electrical Work | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Publi School | Priva School | Conti .Educ. | Total | Publi School | Priva School | Conti .Educ. | Total | Publi School | Priva School | Conti .Educ. | Total |
| Enrolled | Boys | 23 | 0 | 9 | 32 | 11 | 0 | 2 | 13 | 31 | 0 | 17 | 48 |
| | Girls | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Total | 23 | 0 | 9 | 32 | 11 | 0 | 2 | 13 | 32 | 0 | 17 | 49 |
| n° of Candidat | Boys | 23 | 0 | 8 | 31 | 11 | 0 | 1 | 12 | 31 | 0 | 13 | 44 |
| | Girls | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Total | 23 | 0 | 8 | 31 | 11 | 0 | 1 | 12 | 32 | 0 | 13 | 45 |
| Pass Part 1 | Boys | 3 | 0 | 0 | 3 | 7 | 0 | 0 | 7 | 10 | 0 | 1 | 11 |
| | Girls | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total | 3 | 0 | 0 | 3 | 7 | 0 | 0 | 7 | 10 | 0 | 1 | 11 |
| Pass Part 2 | Boys | 4 | 0 | 2 | 6 | 2 | 0 | 0 | 2 | 6 | 0 | 1 | 7 |
| | Girls | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Total | 4 | 0 | 2 | 6 | 2 | 0 | 0 | 2 | 7 | 0 | 1 | 8 |
| Total Pass | Boys | 7 | 0 | 2 | 9 | 9 | 0 | 0 | 9 | 16 | 0 | 2 | 18 |
| | Girls | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Total | 7 | 0 | 2 | 9 | 9 | 0 | 0 | 9 | 17 | 0 | 2 | 19 |

*Source : Ministry of Secondary, High and Scientific Research, Burkina Faso*

Table 9b : **Final Baccalauréat (Senior High School) Results in TVE in Burkina Faso (1992)**

| | | E. Technology Education | | | | G1. Secretarial Studies | | | | G2. Management & Accounting | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Publi School | Priva School | Conti .Educ. | Total | Publi School | Priva School | Conti .Educ. | Total | Publi School | Priva School | Conti .Educ. | Total |
| Enrolled | Boys | 38 | 0 | 2 | 40 | 0 | 1 | 9 | 10 | 60 | 353 | 354 | 767 |
| | Girls | 1 | 0 | 1 | 2 | 28 | 119 | 54 | 201 | 50 | 205 | 152 | 407 |
| | Total | 39 | 0 | 3 | 42 | 28 | 120 | 63 | 211 | 110 | 558 | 506 | 1174 |
| n° of Candidat | Boys | 38 | 0 | 2 | 40 | 0 | 1 | 8 | 9 | 60 | 351 | 277 | 688 |
| | Girls | 1 | 0 | 1 | 2 | 28 | 118 | 36 | 182 | 49 | 202 | 103 | 354 |
| | Total | 39 | 0 | 3 | 42 | 28 | 119 | 44 | 191 | 109 | 553 | 380 | 1042 |
| Pass Part 1 | Boys | 20 | 0 | 0 | 20 | 2 | 0 | 1 | 1 | 44 | 103 | 45 | 192 |
| | Girls | 1 | 0 | 1 | 2 | 0 | 17 | 3 | 22 | 20 | 39 | 9 | 68 |
| | Total | 21 | 0 | 1 | 22 | 2 | 17 | 4 | 23 | 64 | 142 | 54 | 260 |
| Pass Part 2 | Boys | 8 | 0 | 2 | 10 | 0 | 0 | 2 | 2 | 9 | 65 | 39 | 113 |
| | Girls | 0 | 0 | 0 | 0 | 12 | 39 | 9 | 60 | 8 | 33 | 10 | 51 |
| | Total | 8 | 0 | 2 | 10 | 12 | 39 | 11 | 62 | 17 | 98 | 49 | 164 |
| Total Pass | Boys | 28 | 0 | 2 | 30 | 0 | 0 | 3 | 3 | 53 | 168 | 84 | 305 |
| | Girls | 1 | 0 | 1 | 2 | 14 | 36 | 12 | 82 | 28 | 72 | 19 | 119 |
| | Total | 29 | 0 | 3 | 32 | 14 | 36 | 15 | 85 | 81 | 240 | 103 | 424 |

Today girls continue to opt for traditionally female oriented occupations even though there is some equal access to male dominated occupations. Some of the major causes inhibiting girls and women from pursuing technical and vocational careers have been cited to include the following:

> *Societal Norms and Prejudices :* In traditional society male and female roles were clearly defined and both sexes were expected to respect them. This is still very much the case in Africa where the majority of populations are illiterate and rural based;

*Feeling of Incapability :* Women have accepted the idea that they are less physically capable and therefore avoid physically straineous and unpleasant work environments.

*Lack of Encouragement and Role Models :* Young girls need encouragement which is often lacking from their parents, teachers and community. There are too few role models to emulate in TVE occupations.

*Ignorance :* A majority of girls and women simply lack basic and useful information about jobs, occupations and opportunities that are available. With adequate information they can select appropriate programmes and pursue careers in scientific and technological fields.

## COOPERATION BETWEEN TECHNICAL VOCATIONAL EDUCATIONAL INSTITUTIONS AND ENTERPRISES

### *The need for Cooperation*

The ultimate goal of technical and vocational education is to prepare individuals for the world of work. In order for technical and vocational education to be relevant, it must be closely linked to enterprises so that its graduates will find it easier to move from education into the work environment.

Enterprises too will benefit from this relationship because they are the main employers or consumers of TVE products. Furthermore, entrprises can benefit from the expertise available in the institutions in addressing and solving some of their problems. Collaborative ventures in Research and Development activities will benefit both educational institutions and enterprises.

Traditionally, educational institutions have been rather conservative and reluctant to adapt to changes in society and the world of work. The current economic constraints coupled with rising costs of tools, technical equipment and training materials have made it more difficult for TVE institutions in Africa to offer quality and relevant programmes. Businesses and enterprises on the other hand survive on competitiveness in the production of their products or services. They are, as a result, more responsive to changes and new technologies. Cooperation with TVE institutions will have a positive effect on all aspects of training activities including curriculum, tools and equipment, training materials and staffing.

### *Cooperation Activities Today*

Today a wide range of activities are carried out as TVE institutions strive to meet the skill demands for technical occupations in business and industry.

### *Industrial Vocational Training*

The oldest legal form of cooperation initiated by some governments in vocational training was through the Industrial Vocational Training Act as seen in Ghana (1970); Kenya (1971) ; Zimbabwe (1978) ; Uganda (1979) ; Côte d'Ivoire (1982) and Swaziland (1982). In other countries various Government Ministries and departments have formulated policies to govern industrial training.

In Kenya, the Act established an Industrial Training Council which, for example, has been responsible for the recruitment of some 3,261 craft apprentices and 1,512 technician apprentices between 1988 and 1993. An industrial Levy Fund was also established. Enterprises contribute to the levy and are reimbursed their training costs when they participate.

In Nigeria, the National Directorate of Employment has facilitated the recruitment of more than half a million youths in the National Open Apprenticeship Scheme since its inception in 1987. In Edo State alone a total of 9,468 youths (50 % female) had benefited by the end of 1993.

Technical and vocational education institutions have not been direct beneficiairies of these schemes although they have provided the training in many cases. Common areas within which TVE institutions and enterprises cooperate include the following.

### *Institutional Management Boards*

Most TVE institutions are run by local management boards appointed by the responsible government ministry or department. The boards are responsible for the general management and administration of the institutions where the head of the institution is usually the secretary to the board. The board comprises of various community leaders including business and industry representatives whose role is to advise on the possible involvement of industry in the management of the institution to ensure relevance in training programmes and continued collaboration in training.

### *Curriculum Development Panels*

Close ties between TVE institutions and enterprises are recognized as critical to the institution's ability to provide the nation with qualified and technologically relevant manpower. In Ghana, the importance of these links is underscored by the recommendation of the Ghana Education Service that TVE institutions should have adequate representation of industrial interests on their governing bodies and Course Advisory Committees.

In Kenya, there is a well established mechanism for coopertion between educational institutions and enterprises. This mechanism enables representatives of enterprises to participate in various Kenya Institute of Education (KIE) Curriculum development panels from subject panels to course panels as well as on the Academic Board. The process ensures that the needs of industry are reflected in each course sylabus developed for TVE programmes.

In Francophone countries the National Curriculum Development Institutes (Institut pédagogique national) are in principle responsible for curriculum development in all educational areas. However, the TVE area is not well developed.

*Industrial Attachment*

Industrial attachment has been one of the most widely used and effective methods in attempting to pass on the latest experiences from industry to both trainees and staff from technical and vocational training institutions. Under this scheme various arrangements including short term industrial placements ranging from a few weeks to three months alternating with regular institutional terms are arranged. In some cases, six months or one year placements are organized to enable trainees gain on-the-job experiences in the world of work.

A common practice has been for individual institutioons to approach enterprises and make arrangements to suit their time schedules and types of programmes. Unfortunately country experiences reveal that the practice has not been successful.

*Continuing Education and Training*

There is a growing demand for continued education and training by those already in employment. The main causes for this demand include :

a ) the need for more general education for the majority of the youth who terminated their education at the primary level and now wish to continue;

b) the need to acquire more advanced and new technical skills brought about by the technological changes prompting shifts, in businesses and industry to new products and services;

c) the need on the part of the more able and ambitious workers to advance their knowledge and skills in order to enhance their careers.

Polytechnics and other advanced technical colleges run evening and part time courses for industry and the rest of the work force to meet the above needs.

*Research and Development Activities*

Universities and advanced technical institutions have a pool of higher manpower in many technical fields critical to national development. Some institutions are already collaborating with industry to conduct basic and applied research in the development of new products or enhancement of existing products through innovations. However, the full potential of collaboration in this area is still largely untapped.

The rapid growth of the informal sector in Africa is a challenge to technical and vocational institutions. A wide range of innovations have emerged resulting in products and services that are affordable by the local consumers who cannot afford the high cost of imported goods. At present, the capacity of this informal sector to provide more jobs for the growing labour force and its technological capacity to provide the local market with inexpensive but quality products are as yet undetermined. Universities and technical institutions have the capacity to conduct research in these areas and also collaborate with enterprises to come up with new and better quality products.

### *Exhibitions and Trade Fairs*

Technical and vocational education departments often stage exhibitions where finalist students' projects are displayed to the public. Such departments and deserving students are known to receive handsome prices in cash payments, scholarships and research grants from enterprises. TVE institutions also exhibit at Agricultural shows and various Trade Fairs where they interact with business and industry professionals, exchange new information and get to see the latest scientific and technological innovations in their respective areas of specialization.

## ***Major Constraints to Cooperation between Institutions and Enterprises***

### *Reluctance of the Enterprises*

Training is expensive. Most enterprises will avoid it if possible. However, there are some important reasons for the reluctance.

a) Under present economic decline, most enterprises operate below capacity and fear that taking on inexperienced trainees would further marginalize their production and profits as well.

b) trainees on attachment are risk factors for enterprises because they are often uninsured against accidents.

c) Most large enterprises are foreign owned and have wider international interests besides training. A majority of local enterprises are still small and weak. They do not have sufficient capacity to cooperate with TVE institutions or even to conduct their own training programmes.

### *Lack of an effective Industrial Attachment Management Mechanism*

Increased enrollment in TVE means that more places have to be found for participating institutions which include universities. The lack of an effective industrial attachment management mechanism nationwide leaves many individual institutions struggling to seek placements, resulting in conflicts and mismanagement of this important aspect of training.

*Inappropriate Methods of Assessment :*

Quite often industrial attachment exercises are not assessed and taken into consideration for qualification. Where this is lacking, students and staff as well as cooperating enterprises do not take the exercise seriously.

*Inadequate Incentives for Students*

Students on attachment often require some allowances to cover their travelling and subsistance costs. These are in most cases too meagre for students to value and concentrate on the attachment. Some enterprises are willing to provide places provided it will not be at cost to them. Some well established firms have had to top-up the trainees' allowances.

*Lack of Information on the Benefits of Cooperation*

Information is lacking for enterprises to know that they can benefit from the cooperation with institutions. Institutions have capacities to undertake market research, product design and improvement as well as technological innovations, all of which can benefit enterprises.

*Favour of Supervisory and Managerial Training :*

Where a training levy exists most enterprisess use most of their shares to provide training courses for supervisory and managerial personnel at the expense of the lower cadre personnel such as artisans, craftsmen and technicians.

## THE DEVELOPMENT OF TECHNICAL AND VOCATIONAL EDUCATION IN AFRICA : MAJOR CHALLENGES

The development of technical and vocational education in Africa has taken place against major challenges, some of which have managed to subdue, if not stagnate the process completely.

### *The Socio-Economic Context*

The lack of peace due to political instabilities and continued economic decline have lead to :

a ) The abandonment of schooling all together in some countries

b) declining enrollments in education and training and,

c) rising unemployment.

Peace must prevail first and foremost before any tangible investments in human resources and economic growth can take place. In the long run, a well educated and trained labour force will be more productive thus immensely contributing to the peace dividend.

The scenario of relationships between schooling, training and the world of work in Africa can be generally summarized as discouraging. If we take, for example, 100 children who enrol in the first year of Primary level education at the end of that cycle, only 30 will continue with either secondary education or some form of vocational training and eventually only 3 may pursue tertiary level education and training. The majority will terminate at primary level. How can TVE help this silent majority, (70%) for whom primary level education is terminal. ?

### *Low Status Syndrome*

TVE still suffers from a lower status compared to general education. In Africa this was a colonial legacy where the colonized people (Africans) were expected to be workers. Vocational training was meant for them while general academic education was reserved for the masters who mainly occupied white colour jobs. Prior to colonization vocational education and training were a part and parcel of one's upbringing. Specialized crafts and trades such as ironmongery, leather work, pottery making, and house building were well respected.

Today, despite the rampant unemployment amongst those with general education, the recognition of this kind of education through deployment at administrative and leadership levels still attracts highly motivated and talented youth.

Talking about the importance of TVE without any deliberate action to follow up the rhetoric will not absolve it of its low status.

Interestingly this problem has been well known since the early days of independence as pointed out in the Ashby Commission Report to the Nigerian Government shortly before independence in 1960 (See box 4)

Box 4 : **The Ashby Commission Report of Nigeria (1960)**

> "The major defect in Nigerian education, is the strong bias toward the traditional literary and academic subjects. This is reflected in a lack of respect on the part of the public for manual labour. We strongly believe that the most effective way of correcting this would be to introduce a manual subject as an obligatory ingridient of primary and secondary schooling. We like, moreover, to see technical streams in some secondary schools leading to a school certificate examination which includes technical subjects. Experiments on this pattern have been notably successful in some other developing countries and we think this is an aspect of secondary education which Nigeria can ill afford to ignore" (FME, 1960).*

* *From Ehiametalor, E.T. (1993) Country Case Study on Tehnical and Vocational Education in Nigeria, UNESCO (BREDA)*

### *The Changing Needs of Societies and of the Workplace*

Africa's perpetual challenge is one of producing a sufficient amount of goods and services to meet the basic needs of a rapidly growing population most of which is dependent

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i.e. below 15 years of age. Coupled with this challenge is the changing work environment where new knowledge and technologies are altering the skill requirements for production and maintenance. Africa too must occupy its place in the 21st scientific and technological century.

The implications for curriculum change for both teacher education and learning in TVE are enormous. Quality assurance is sought by both trainees and employers to ensure that the current mismatch between job seekers and available employment opportunities is arrested. A major curricular issue is whether the present curricula in TVE institutions are adequate and relevant to the needs of the modern world of work which is constantly changing. What type of curriculum is ideal for basic (primary) and secondary level education? There is a growing concern over the relevance of traditional trade subjects such as woodwork, metalwork, electricity and automechanics offered in the curriculum in preparing the youth of today for a scientific and technological society that will be characteristic of the 21st century.

### *Teacher Education*

Teacher education is another major challenge. The capacity of the future technological manpower can only be measured against the teachers available. Today, TVE teacher shortages in most African States is critical considering the major educational reforms calling for the vocationalization of the school curriculum. The problem here is twofold : first, is the adequate supply of at least one or two TVE teachers in each school to ensure some minimum exposure of learners to TVE. Secondly, TVE teachers can no longer be effectively trained along the traditional trade subject curricula used to prepare tradesmen. Their curriculum must esentially be scientific and technological in nature. Such a curriculum does not yet exist. TVE scholars all over the world are currently exploring the new frontier to come up with "technology education" as a new discipline in the school curriculum.

There are also attractive jobs for them outside teaching. Most enterprises prefer to recruit technical personnel with the professional teacher education background for such positions as training officers and managers. They are comparatively better paid than their colleagues in the education system.

### *Equity and Access Issues in TVE*

Technical and vocational education is possibly the most accommodating education for a variety of learners. Both the talented and the disadvantaged will find it most rewarding. Overall National legal and policy frameworks do provide for equal access to TVE for all interested persons irrespective of gender, race or social status. However, due to its rising costs and the traditional stereotyping along gender lines, a large number of special groups of learners including the handicapped, the economically disadvantaged and girls and women continue to be excluded from pursuing TVE.

The exclusion of girls and women from technical and vocational careers renders half of the nation's labour force incapacitated in terms of production. This part of the population continues to play an increasingly important role in the economy yet as shown in the case studies the participation of girls and women in technical and vocational programmes is still indeed dismal.

### *Cooperation with Enterprises*

It is now accepted generally that for TVE programmes to be of good quality and relevant, they must reflect the state-of-the-art in the world of work. To do so more effectively, it is inevitable that they cooperate with the existing enterprises which have the latest technologies and production processes that most TVE graduates will aspire to work with. Enterprises are the final consumers of the TVE products yet they are reluctant in contributing toward their preparation. What policy and regulatory mechanisms should be effected to address this problem ?

Box 5 : **The Dakar Technopole**

Mention should be made of the existence of the Dakar Technopole Project which should give considerable impulse to relations between technological - training and research institutions and firms. This Technopole which should be built on a site of 200 hectares in the cetre of the Dakar-Pikine urban area, focusses around four complexes : farm produce, Environment - Energy , Telecommunication - computer science, Communication - activities. Among the many objectives which are aimed at within this project, mention can be made of exploitation of research results, invention of new production processes, involvement of the private sector in the funding and the conducting of applied research programmes, etc.

The operation of a technopole lies mainly on a dynamic partnership between training and research structures and medium and small size firms. The launching of the Dakar Technopole would considerably contribute to promoting cooperation links between schools and firms in Senegal..

*Source : BREDA, UNESCO, Country Case Study in TVE in Senegal, 1993*

### *Cost-Sharing in TVE*

One of the most common reasons or excuses given for the lack of effective TVE programmes is the lack of finance. TVE has been, in the past, largely funded from sources external to the countries of Africa. It is now almost certain under new Structural Adjustment Programmes that these countries will not continue to be funded as before. The cost of financing TVE has increased. Modern and more versatile tools and equipment are needed to provide relevant training for the changing work place.

First-hand experiences from some of these countries, for example Kenya, where cost sharing measures have been taken indicate a decline in enrollments most particularly in the technical fields. What alternative measures can be advanced to raise funds on a more sustainable basis without discouraging enrollment ?

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## A REVIEW OF RECENT INNOVATIVE MEASURES

Despite the challenges facing most African countries today, some bold measures have been undertaken to bring technical and vocational education into the mainstream of education and to bring it closer to the world of work. This is being carried out through a wide range of educational reforms and innovations as well as the restructuring of national economices to provide more employment opportuities.

### *Educational Reforms*

The case studies presented in this report show that virtually all of the countries have instituted some type of educational reform. A common goal has been to make education more functional and development related by bringing technical and vocational education into the mainstream of general education. Some of the most common innovations include the following:

a) Introduction of technical and vocational education in early childhood education (at the primary school level) to inculcate positive attitudes toward TVE and the world of work;
b) The diversification of TVE at the secondary school level to offer more opportunities to learners in order to enable them to choose and pursue careers of their interest ;
c) The expansion and strengthening of TVE programmes at the post secondary level including teacher education ;
d) The articulation of TVE in higher education to ensure that those who are able and are motivated can pursue their education to the highest level possible ;
e) Fostering a closer link between educational institutions and enterprises to ensure quality and relevance in the TVE programmes ;
f) The introduction of entrepreneurship education in most TVE programmes in order to prepare graduates for self employment in the growing informal sector ; and
g) The promotion of associations for heads of TVE institutions and teachers to enable them participate more effectively in the decision making and management of TVE in the country.

### *Cost-Sharing in TVE*

Whilst most governments accept their primary responsibility to shoulder the cost of producing quaified manpower for their nations, it is no longer feasible to continue raising the necessary funds. Some innovative alternative ways of raising funds on a more sustainable level are already emerging. These include :

a) Charging the beneficiairies (students, parents and sponsors) a nominal fee ;
b) Introduction of production units where institutions engage in income generating activities while providing experience in their training programmes ;

c) Introduction of Small Business Centres where entrepreneurs come for help in acquiring skills in preparing business plans, record keeping or management skills at an affordable fee ; and

d) Introduction of a training levy where business and industry are obliged to contribute towards training.

Box 6 : **Financing of TVE in Côte d'Ivoire**

The introduction in Côte d'Ivoire of a training levy to be paid by firms dates back from 1959. Its rate was then 3% of the wage bill of industrial firms. In 1966 this contribution went up to 5 and the national vocational training ageny (ONFP) was set up the same year to become its managing body. Resources thus collected were used to subsidize government pre-service training institutions and also to cover ONFP's operational costs.

In 1977 a law on continuous vocational training was adopted to complete the funding mechanism. This new law made it compulsory for firms to pay the equivalent of a fraction of their salary bill. The produce of this tax was to be paid to a special account managed by the ONFP in accordance with the guidelines of a tripartite body, the maning board.

The National Intervention Fund for continuous education later renamed the National Regulating Fund (FNR) was technically and financially under both the Ministry of Technical and Vocational Education on one hand and the Ministry of Finance on the other (Monier, 1990).

In 1987 funds from the learning tax intended for pre-service training, were separated from resources levied as tax on continuous education. From then the FNR became a full entity separate from ONFP, autonomous and characterised by its tripartite structure.

The fund is supplied every month with deduction made by the public revenue department as taxes on salaries of 1.2%. Collected resources were paid into acount open in the name of FNR to the "Caisse National d'Amortissement", this was compulsory since the public revenue department is to contribute to showing transparency in the funding channel.

Fees paid by firms represented two types of resources. One half of the deduction gave to each paying firm a "drawing right" intended for funding its "firm share" training plan. The balance, this is to say 50% represented a reserve devoted to the implementation of joint projects or the allocation of additional means as "FNR share" to some firms. Respect of this principle implied separate management of the fractions of deductions.

The originality of the mechanism in Côte d'Ivoire lies on two provisions : the principle on savings and the mutualization process. In accordance with the principle on savings, firms should be credited at least twelve months deductions before they can claim to be paid back for training expenses. This measure is to ensure the funds availability.

Mutualization of one part of the deductions allowed among other things the implementation of joint projects. This mechanism enhanced access to training of underpriviledged wage-earners such as employees in firms which are not very active in this area ; these are often small size firms. But it allowed to change a system based on constraint into an incentive mechanism. If the more dynamic firms could obtain through the FNR share, more funding than their contribution, it would indeed promote training.

*Source : Atchoarena, D. Funding of TVE, IIPE, UNESCO 1994*

***Emergence of National Coordinating Agencies***

As already noted in our previous discussions many countries have several Ministries and agencies offering a proliferation of TVE programmes. It has been difficult in most situations to coordinate these activities and harmonize the programmes to achieve desirable objectives.

In response to their problems some countries have already established national coordinating bodies. Senegal, for instance, has established a National Office for Vocational Training (Office National de la Formation Professionnelle - ONFP) while Côte d'Ivoire has the National Agency for Vocational and Technical Education (Agence Nationale pour la Formation Professionnelle - ANFP) Nigeria, Ghana established a National Coordinating Committee for Technical and Vocational Education (NACVET) in 1990. In other cases like

Kenya an entire new Ministry was established to be responsible for technical and vocational education and training.

### *Economic Restructuring*

It is now recognized that no amount of education and training will be sufficient to provide gainful employment without specific government policies aimed at creating an enabling environment for business and industry to expand.

There are already some encouraging signs in some countries where specific measures are undertaken to promote the growth of the informal sector. These include :

(i) the relaxation of certain restrictive trade regulations;

(ii) the provision of credit to prospective entrepreneurs;

(iii) the provision of continuing education and training to employees in both the private sector and the civil service so that they enhance their career development;

(iv) the provision of basic infrastructure to facilitate the production and movement of goods and services into and out of the rural areas.

## CONCLUSIONS

Africa is once more faced with difficult socio-economic challenges which threaten to reverse any progress achieved in the improvement of the quality of life for most of her populations. The dissatisfaction with the traditionally acamedic systems of education which do not help to address the challenges has forced most countries to revamp the education enterprise.

In the process, technical and vocational education has been brought to centre stage because of its recognized contribution to the preparation of various categories of learners for the world of work.

A more recent but powerful challenge to educational policy makers, planners and implementers has been the task of designing, developing and effectively implementing a technical and vocational education system that will meet the needs of modern stake holders who are : learners, the community and employers.

Several countries have made bold attempts with varying degrees of success even though to a larger extent most are still inadequate. The case studies reviewed in this report revealed that there are some prospects, and that with available resources, these countries can evolve responsive and sustainable technical and vocational education systems. While in developed countries of the West and in the new industrializing countries of Asia economic growth has been available to finance education, Africa's mounting threat of economic stagnation and decline has forced governments to cut spending on most essential services including education.

The sheer magnitude of Africa's crisis would have even the most seasoned student of development puzzled. However, a closer examination of the prospects of Africa reveals a high potential of both natural and human resources that could spell, if well managed, immense wealth.

Because of its large size geographically and with an overly dependent population (under 15 years old), the Africa region requires much higher investments in terms of funding. This will call for the collaboration between UNESCO, Member States and the International Community.

Already, UNESCO'S activities through its International Project UNEVOC have aroused keen interest from member States as revealed in the case studies in the following chapters.

The involvement and contributions of Africa's intellectual community through UNEVOC's Centres and the closer collaboration with Africa's Universities and technical colleges is a positive step toward the internationally, acknowledged strategy of *sustainable development through human resource development and institutional capacity building.*

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# PART II

# TECHNICAL AND VOCATIONAL EDUCATION IN THE EDUCATIONAL SYSTEMS

# CHAPTER 2

# TECHNICAL AND VOCATIONAL EDUCATION IN CAMEROON

*Lucy MBANGWANA*[*]

## ABSTRACT

The effective development of the Technical and Vocational Education in Cameroon as well as many other African States depends on the complete understanding of its role in the society, its essential problems and ways in which it could be improved.

Cameroon with all its diversities in its physical, human, and economic aspects makes a lot of effort to review its technical and vocational training to meet with the fast changing world.

Technical and Vocational Education as well as the whole Education system is highly centralised ; discussion on essential matters like administration, pedagogy, finance and even policy formulation emanate from the Ministry of National Education in Yaounde resulting in decisions arriving late in schools, heads of schools taking very little initiative in staff development, in the recruitment of workers, and in the equipment and maintenance of infrastructure.

It is also observed that though many trade courses figure in the school curricula, the practical and self-reliant orientation of the training is grossly lacking as it is too theoretically presented.

It is suggested in this study, bearing in mind the recomnendations of the National Forum on Education, that Technical and Vocational Education should delegate more power to external services to become more responsible, provide a link between training and employment, teach a common core basic education at the junior levels, develop partnership between school environment and the socio-professional world, promote science and technology, encourage textbook writing by nationals, run refresher courses, and many other innovations.

In order to take care of the development of the whole personality of the individual, subsidiary subjects like environment education, media education, aesthetic education, etc., should be included in the curricula.

Although education is the main concem of the Cameroonian Government, it needs the support of its citizens by their contributing into a National Education Fund which will complement the insufficient state budget for education.

## INTRODUCTION

Since the mid 1980s, Cameroon has been undertaking comprehensive school reforms programmes especially in Technical and Vocational Education. This is because of the important role this type of training plays in the economic and social life of the country, and also acts as a better opening to most job markets and self-reliant development, an aspiration for many Cameroonians during this period of crises. Despite attempts by the Government to ameliorate the situation, technical and vocational training is still unable to catch up with the ever changing Cameroonian society.

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This paper therefore brings out the geographical and cultural setting of Cameroon ; the trend of its education policy especially in technical and vocational orientations, problems encountered in the running of our technical and vocational education, efforts made to remedy the deteriorating situation.

## CAMEROON : AFRICA IN MINIATURE

Located in the centre of Africa, in the Gulf of Guinea, Cameroon occupies a transition position between Central and West Africa. It is a large triangle with a surface area of 475,442 square kilometres and a hypotenuse of 1200 Km. It is located approximately between latitude 2°N and 13°N and between longitude 9°E and 16°E.

From a geographical point of view, Cameroon is a link country between wet and dry Africa. Its varying relief includes high lands comprised of mountains and high plateaux in the West and the Adamawa, the Mandara mountains in the Far North and of the Plateaux in the South, of lowlands in the coastal, of the Benue basin, and of the Chadian plains.

From the point of view of climate, we find :

- the hot and moist equatorial region of the south,
- the hot and dry tropical region of the North.

Vegetation is the characteristic of the various climate regions ; hence :

- the forest, and shabby agriculture in the equatorial region,
- the Savannah, and Sahelian agriculture and animal husbandry in the tropical region.

As concerns people, certain ethnologists believe that, at one point in time, Cameroon was a converging point for African population : most human groupings which inhabit other parts of the continent are found in Cameroon, i. e.

- the Bantus and semi-Bantus in the south,
- the Haematic Fulanis, the Sudanese and the Arab Shoa in the North.

Besides, Cameroon is also a link country between Anglophone and Francophone Africa; English and French being the official languages of the Cameroonian people. The population of Cameroon is estimated at 12.6 million in 1994, represented as follows :

- 79% of French-speaking Cameroonians ;
- 21% of English-speaking Cameroonians;
- 56.3% of the population aged below 20 years ;
- 51% comprising of women.

Economically, Cameroon like several other African countries, is a victim of a recession whose effects are long lasting and are beginning to take their toll on the social atmosphere. Agriculture, timber exploitation and animal husbandry are the main economic activities of the country. Industry is still at the budding stage and involves products of substitution only, such as the food industry. As for handicraft, it is very flourishing.

From the point of view of its physical, human and economic features, Cameroon is highly representative of the African continent. Thus the phrase, *Cameroon is Africa in Miniature.*

Despite the economic crisis and not withstanding the embryonic stage of its industry, Cameroon is endowed with great economic potential, such as :

- a youthful and dynamic population,
- abundant mineral and forestry resources,
- great energy potential,
- a political ideology based on liberalism and the gradual state surrender to productive private sectors,
- a system of education increasingly concerned about professionalisation and the taking into account of the socio-econornic reality of the country.

## TRENDS IN THE CAMEROON EDUCATION POLICY SINCE 1984

Since 1984, the Government has been striving to give education a real face lift. This concern can be observed in measures taken in the area of primary, secondary and higher education such as :

- The multiplication and the building of school infrastructure at all levels of education ;
- Emphasis on scientific and technical fields of studies by stepping up the number of classrooms and equipping general secondary schools with laboratories and laboratory equipment ;
- Emphasis on the opening of new training schools ;
- The creating of institutes of technology in our universities ;
- The revision of the training policy at the higher Teacher Training College (ENS) and the adaptation of the syllabus of that institution to the real needs of the country ;
- The stepping up of the recruitment of the foreign teachers in science and technical subjects;
- A greater decentralisation of the management of the education system by splitting up the former Inspectorate General of pedagogy into three sectors corresponding to the types of education managed by the Ministry of National Education (MINEDUC) :
    - Nursery and Primary,

  - General Secondary,
  - Technical and Vocational education.
- Creating new services : Delegations and sub-Delegations for National Education ;
- Better logistics. Since 1984, our educational system has been placed under the sign of a quest for quality education ; i.e. a better management of the available personnel and competence.

Effort made by the State on Education budget and in the field of Technical and Vocational Education is found in the statistics on Tables 1 and 2 below.

Table 1 : **Evolution of State Budget and that of the Ministry of National Education**
*In thousands of millions CFA Francs*

| | **1984/1985** | **1992/1993** | **1993/1994** | **1994/1995** |
|---|---|---|---|---|
| **State Budget** | 620 | 600 | 576 | 576 |
| **Education Budget** | 98.300 | 87.020 | 83.700 | 59.094 |
| **% of State Budget on Education Budget** | 16.00% | 16.00% | 14.53% | 10.25% |

Table 2 : **Evolution in the field of Technical and Vocational Education**

| **Number of Years** | **Teaching Staff** | **Students** | **Technical & Vocational Schools** |
|---|---|---|---|
| 1985/1986 | 3,070 | 79,219 | 188 |
| 1987/1988 | 4,157 | 83,093 | 199 |
| 1989/1990 | 4,652 | 89,698 | 217 |
| 1991/1992 | 4,993 | 92,877 | 251 |
| 1992/1993 | 5,148 | 93,651 | 267 |
| 1993/1994 | 5,658 | 92,550 | 273 |
| 1994/1995 | 5,745 | 90,226 | 296 |

## ORGANISATION AND FUNCTIONING OF THE PRESENT TECHNICAL AND VOCATIONAL EDUCATION SYSTEM

*Study Cycles and their Durations*

- Post-primary Cycle: Rural Artisan Section/Home Economics Centre (RAS/HEC).
- Duration of course : 2 years after class VII, First School Leaving Certificate (FSLC) is optional.
- Certificate obtained : Testimonial of Success.

***Fields of Study***

*The Commercial Section*

Here, there are 7 areas of specialisation :

- Shorthand sterno-typists
- Office clerk

- Accounting management techniques
- Economics and Social Sciences Accounts clerk
- Office management techniques
- Marketing techniques

*The Industrial Section*

It has 38 areas of specialisation, 19 in either cycle :

- Motor Mechanics
- Metal Construction
- Motor Electricity
- Electrical Technology
- Electronics
- Home Economics
- Mechanical Engineering
- Building/Construction
- Civil Engineering/Drafting
- Plumbing
- Geometry/Topography
- Clothing Industry
- Diesel Motor Mechanics
- Audio-Visual Maintenance
- Carpentry and Joinery
- General Mechanics
- Sheet-Metal construction
- Electromechanical Equipment Maintenance
- Industrial Chemistry
- Architectural Drafting
- Mathematics and technology
- Electricity Equipment
- Electro-mechanics
- Refrigeration and air conditioning
- Metal Construction
- Civil Engineering/Design & Construction
- Civil Engineering/Public works
- Refrigeration/Air conditioning
- Forestry Exploitation
- Geometry-Photogrammetry
- Bricklaying and Construction

- Survey/Topography
- Welding
- Wood work
- Survey/Photogrammetry

Most of these specialities are set up without any provision of adequate structures. There is necessity for technical schools to be specialised in a limited manner and for new areas of specialisation to be created, staffed and equipped.

*Management of Technical and Vocational Schools*

Schools are run by a number of officials appointed by the Minister of National Education. Decree n° 80/293 of 25 July 1980 defines their duties and competence.

- Administrative Management
    * Central Services : the Minister, the Secretaries of State or Junior Ministers, Technical Advisers, Inspectors General of Pedagogy, Directors, Heads of Division.
    * External Services : Provincial Delegates, Provincial Inspectors of Pedagogy, Principals of Schools.
- Financial Management
    * The Minister authorizes the disbursement of funds.
    * The Director of General Affairs allocates credits to various departments and divisions, provincial delegations and schools for pedagogic materials and equipment.

From the foregoing, there is overcentralisation of financial management. Such a procedure usually hinders smooth running of routine activities. Such a situation needs to be reviewed for improved simplified management. There has been a serious drop on the percentage of the State budget reserved for National Education over the past three fiscal years, viz : 16% in 1992/93, 14.53% in 1993/94, 10.25% in 1994/95. And to this drop is added the partial execution of the said budget due to lack of liquidity, i.e. 60% for 1992/93, 37% for 1993/94. Families are obliged by this situation to make significant contributions in the financing of Public Education. Private Education is financed partly from fees paid by parents and subvention from the State.

- Pedagogic Management

Pedagogy is essentially managed by :

* The General Inspectorate of Pedagogy in charge of Technical and Vocational Education, headed by an Inspector General who is assisted by two coordinating Inspectors and several National Inspectors of Pedagogy.
* Pedagogic Management in the External Services is done by Provincial Inspectors of Pedagogy and Heads of Schools.
* Inadequate equipment and logistics constitute a serious handicap to pedagogic action.

- Personnel Management

Three Ministerial departments are involved in the management of personnel. They are :

- Ministry of the Public Service and Administrative Reforms
- Ministry of National Education
- Ministry of the Economy and Finance

Personnel Management at the level of the Ministry of National Education (MINEDUC) is done by :

- The department of General Affairs,
- The Department of Technical and Vocational Education,
- The heads of schools and private institutions.

The career profile of our personnel is not well defined in this present structure.

- Training of Personnel

The training of our teachers are done in institutions such as ENIAET, ENIET, ENSET and ENS.

At different levels of professional training we can find among other problems handicaps such as:

- The lack or inadequate supply of training facilities,
- Short shopping of qualified teachers,
- The inexistence of an approved syllabus for ENIAET/ENIET,
- The suspension of training in the ENIAET/ENIET

During training periods, workshop and laboratory work are not given the attention it deserves.

*Role of our Technical and Vocational Education*

All around the world, Education, in general, is an enabling process or instrument for promoting economic growth, increasing the productivity of labour and equipping people with the skills needed to participate fully in the development of the society.

Labour markets, technology and trade are changing dramatically all over the world, and in Cameroon with the economic crisis, the acquisition of technical knowledge and elementary professional skills become more imperative as this can lead to job generalisation. Parents get more involved in seeing a productive child with vocational skills who will bring income into the family or make the child better off and self-reliant.

Technical and vocational education here is a major tool for sustainable development of our country. The well being of our families (households) is determined by income from labour, and we know that productivity of labour to a large extent is also determined by peoples' skills and competence. Such quantities are not brought about by education alone but through obtaining basic skills in science and technology. Any industrial development or restructuring of the productive sectors in Cameroon will need a well defined technical and professional programme. This must take into consideration the rapid changing technology, the idea of market oriented economy, and the fast development of communication system.

## PROBLEMS ENCOUNTERED BY THE PRESENT EDUCATIONAL POLICY ESPECIALLY IN THE AREA OF TECHNICAL AND VOCATIONAL TRAINING

The Cameroon Educational System is fraught with a number of problems, some that stem from our colonial heritage while the others are the result of the rapid increase in the number of school-age children. A critical look at what is obtained now will enable us to observe that some of the objectives stated below have not been implemented while others, due to the economic recession or to their delayed implementation, have not survived the experimental phase.

Problems that plague the Cameroon system of education are similar at all levels. they may.be appreciated differently depending on whether one focuses on general education or on technical/vocational Education.

Difficulties encountered in Technical and Vocational Education are essentially accounted for by the inadequacy of means available which neither allow for the extension of structures to meet the need of national development, nor permits teaching in a sufficiently conducive atmosphere. Among many problems we can identify the following :

- Educational management in Cameroon faces a centralisation problem where all decisions concerning our technical and vocational schools comes from the centre. The opening and extension of schools, personnel management, management of time, etc., all emanate from the Ministry of National Education in Yaounde. As a result, decisions get to schools very late. There are no initiatives from heads of schools concerning the development of staff career, and many others.
- School infrastructure and equipment are grossly insufficient for the training of both teachers and students. Shortage of and even lack of science laboratories in many schools, inadequate specialised workshops, no playgrounds plague our school establishments. Also, the decrepit nature of existing infrastructure.
- There is no more recruitment of required workers in most schools and the present situation is stagnating ; even though more colleges are being opened yearly following the increasing number of students.
- There is insufficient maintenance of schools infrastructure, and equipment and didactic materials.
- Pedagogic materials, mostly textbooks from technical assistance are replete with ill-adaptation of examples and illustrations.
- No defined policy on industrial training of our students of vocational and technical schools.

- Crucial lack of qualified teachers for technical and vocational institution. This is because there is no fixed criteria for selection into Teacher Training Institution, no adapted infrastructure and equipment in these training schools, no systematic policy for refresher courses, and lack of motivation for existing teachers.
- Too many students in class, given an average of teacher/students ratio of 1:60 in most towns.
- Insufficient funds for practical work.
- The inappropriate link between training and employment and the lack of training for self-employment.

***Government Strategies***

In order to make our schools more productive and more attractive to the public, the Ministry of National Education introduced an *Open Day* philosophy in all technical and vocational schools. This new philosophy gives the public an opportunity to assess the productive competence in each institution. The Open Day offers opportunity for the evaluation of school teaching and learning effectiveness. Partners to education (parents, enterprises and individuals, charitable organisations, bilateral and multilateral organisations, suppliers and customers, etc.) see what students are able to produce, how much has been down within the year, and what capacity a vocational or technical institution can accommodate in terms of students and equipment. The Open Day also sensitizes the nation on the importance and usefulness of technical education.

Another serious project still under study is the *Auto-Financing* of schools. Government during this economic crises, finds it very difficult to carry out repairs of school infrastructure and equipment and to replenish them with equipment and furniture, and provide teaching materials. Technical colleges, therefore are to use their practical knowledge to produce articles for sale and provide services for money. Any vocational or technical school with industrial and commercial trades should be able to produce items to eam income for the needs of the school. Schools with carpentry, building construction, motor mechanics, for example can make chairs and cupboards for the market; build and roof small houses around their area and repair cars in their workshops. This project will give more opportunities to students to be more industrious and practice the elementary commerce and accounts they learn in class. These students will be used to marketing techniques and learn how to manage small businesses. The main problem with this project will be the control of student's study and practical hours, and also the management of funds generated from the various operations.

During the revision of our school syllabuses for the GTHS, the labour sector and industries were consulted for relevant inputs. There were negotiations with the productive sector for practical work and industrial experience, so that the modified and renovated curricula followed changing times and needs.

The aim of the just ended Forum on National Education is to propose to the Cameroon Government an education policy that will help to solve the major problem plaguing our society and to take up the challenges of the 21st century which are undoubtedly many and varied. The National Forum, invited guests from the productive sectors (proprietors of business, managing directors of private companies, the university world, research centres and institutes, international donors, etc.), as participants who contributed immensely in showing the link existing between industry and school, the international market developments, and the changing labour market. Guest speakers from our industries explain new openings for the labour market in Cameroon, the importance of training with their workshops so as to gain industrial and practical experience.

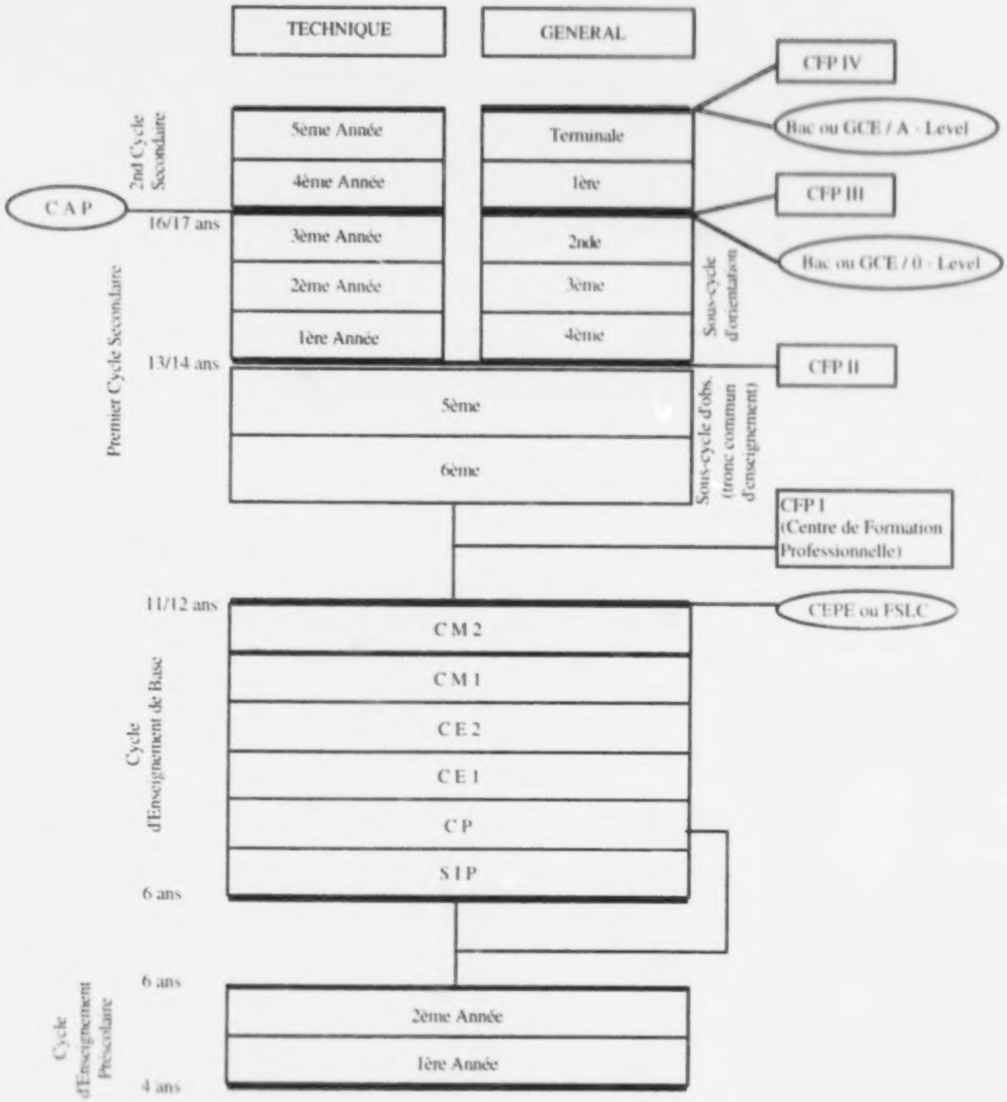
The National Forum of Education also proposed among other elements the following :

- The encouragement of *vocational* and career orientation through :
  - ensuring a relevant link between training and employment ;
  - training within a relevant socio-economic context ;
  - developing partnership between the school system and socio-professional world.
- Continuing the delegation of power to external services as concerns administration, pedagogy and finance, with a view to decentralising the education system and its administering authority.
- Promoting science education, technical and technological education at all levels.
- Introduction of environmental education, education for family life, population and health.
- Inculcating work ethics and the quest for excellence.
- The promotion of partnership and sponsorship organisation, functioning and funding of education.
- The encouragement of economic education geared towards the benefit of a free market economy.
- Promoting media education, aesthetic education as well as the creative arts.
- The establishment of centres for professional, artistic and vocational training at four different levels, viz :
  a ) end of basic education,
  b) end of common core in the first cycle of secondary education,
  c) end of first cycle of secondary education, and
  d) end of second cycle of secondary education.
- The liberalisation of teacher-training at various institutions for the supply of a large pool of qualified teachers for both Government and private institutions.
- The reassessment of entry qualificaticns into teacher-training institutions with the General Certificate of Education, GCE A'level or Baccalaureat, being the minimum entry requirement.

- The introduction of the training workshop teachers in appropriate institutions.
- The setting up of more rational policies on the posting and transfers of teachers. Furthermore that the appointment of teachers to posts of responsibility should be based on qualification, seniority, competence and a positive career profile.
- The implementation of regular in-service teacher development programmes through refresher courses, distance education and the encouragement of subject associations for more professional accomplishment and motivation.
- A substantial increase of the part of the state's budget allocated to education. Such funds should be fully utilised. The creation of a National Fund for Education in addition to the state's budget in order to ensure the ultimate provision for the free and compulsory basic education for all.
- A proposal to create contract schools where salaries of teachers will be paid by the state, and school fees very minimal to cover any running cost, and autonomous schools with financial autonomy that will be free to fix their tuition and boarding fees.
- Encouragement of non-formal technical and vocational education which is intended for those students who drop out from the school system at any level. Actually the existing non-formal institutions are insufficient for Cameroonians, and do not belong to the Ministry of National Education. Also, the Government intends to create a link between such institutions and the existing formal educational institution.
- An intention to create professional and vocational centres with due regard to the needs, socio-economic potential and the realities of each region. Local and gifted craftsmen should be called upon to teach young people in such institutions.

Cameroonians conclude that, the school should ensure that the end product of the education system is economically productive, enterprising and endowed with initiatives likely to make him or her creative, self reliant and capable of adapting to the evolution of science and technology at all times.

## DIAGRAMME
## DU PROJET DE CYCLES D'ETUDES
## CAMEROUN


TECHNIQUE
GENERAL
CFP IV
Bac ou GCE / A - Level
5ème Année
4ème Année
Terminale
1ère
2nd Cycle Secondaire
CAP
CFP III
Bac ou GCE / 0 - Level
16/17 ans
3ème Année
2ème Année
1ère Année
2nde
3ème
4ème
Sous-cycle d'orientation
Premier Cycle Secondaire
13/14 ans
CFP II
5ème
6ème
Sous-cycle d'obs. (tronc commun d'enseignement)
CFP I (Centre de Formation Professionnelle)
11/12 ans
CEPE ou FSLC
CM 2
CM 1
CE 2
CE 1
CP
SIP
Cycle d'Enseignement de Base
6 ans
6 ans
2ème Année
1ère Année
Cycle d'Enseignement Prescolaire
4 ans

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# CHAPTER 3

# TECHNICAL AND VOCATIONAL EDUCATION IN CONGO

*Gilbert NDIMINA*[*]

## INTRODUCTION

After Independance, a shortage of higher level manpower led the Government of Congo to think of mass education as the best solution. Unfortunately, the population attending school was mainly enrolled in general education rather than in the technical and vocational sectors although technical and vocational education are one of the major economic and social development factors in a country.

In fact the expression *Technical and Vocational Education* designates two educational processes which when added to a general education implies the study of techniques and sciences, the acquisition of practical capacities, attitudes of comprehension and knowledge in relation to the professions in the various sectors of economic and social life.

The objective of our education is to provide the trainees with competencies and qualifications that will make them become good, up to date professionals. The vital needs of man and the challenges of our economy should inspire and direct the education policy of our country.

Our teaching should take into account a variety of national and international factors.

Today, evolutions of Science and Technology should lead us to think in terms of international perspectives whereas our realities oblige us to find national solutions. Training and professional life should henceforth be placed side by side and even be intertwined, rather than continue to be successive stages of life.

Technical and Vocational Education should be a development factor in our country. In this respect it should be conceived such as to :

- Suppress obstacles between the levels and the fields of education, between education and employment and between school and society, by integrating all components of the post-primary education.
- Improve the quality of life by assuring each citizen of Congo, the possibility to expand his intellectual horizon, acquire professional skills and knowledge and constantly improve them.

To reach these goals, binding general culture with specialization, all in a spirit of constructive criticism and initiatives, the evaluation-symposium on Education in the People's Republic of Congo, held from 26 of 29 July 1988 set up the following recommendations for General Education Policy :

- To secure professional training as needed for development ;

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- To promote and diversify if needed , by inviting the private sector to offer professional training to interested youths, or those who are forced to abandon the formal system ;
- To make sure that support to middle professional training schools be given by the Ministries which use the final products ;
- To interest pupils in technical training according to their aptitudes ;
- To make the school face the great developmental problems.

## HISTORICAL OVERVIEW

The history of Technical and Vocational Education started with the present May 1st Technical High School of Brazzaville. In order to fulfil their manpower needs, the colonizer thought to set up, around the year 1930, a training structure for the native workers.

Under instruction from the Governor General of the French Eastern Africa, Mr Jean François RESTE, a french entrepreneur was named Director of Brazzaville's first Vocational Federal School of French Eastern Africa.

This Vocational Federal School's objective was to train native workers ; and it was in the present *Lycée Technique du 1er Mai* that worshops were set up, while the theoretical training was given at the (Ecole Supérieure) Edouard RENARD High School which trained the Deputy Primary School Teachers of *Category C*.

The duration of studies was 4 years after the *Certificate of Indigenous Studies*, in the following sectors :

- Carpentry
- Metal works
- Masonry
- Fitting

The commercial sections did not start before 1950, at the same time as auto-mechanic and electricity training.

In 1956, the higher teacher training section was created and annexed to the Edouard RENARD High School with the aim of training Practical Work directors (workshop instructors).

At the beginning of 1959-1960 term, the Territorial Vocational School was transformed into Technical College with an annexed Apprenticeship Center (on-the-job training Center).

In October 1960, the Government Technical College and its annex became a Technical Training College.

On 25 November 1960, Government Technical High School was established by decree N° 60/617 to which was added a technical college. The new school prepared students for the Technical Advanced Level Certificate or Industrial and Commercial School Certificate.

In 1965, the Technical Education Office of the Director was created. It should be mentioned here that apart from technical education, the threefold *Education, Health, Administration* remained the sole component of the professional training a long time after independence.

## TRENDS AND DEVELOPMENT

The Government of Congo made efforts in the fields of Education, health, agriculture, forestry commission, administration, culture, sports, industry, commerce and civil engineering which led to the creation of the following : ENT, ENS, FPMNS, INJSSA, IDR, ENEP, ENMA, ENAM, INS, Institut Technique Thomas SANKARA, Lycée Technique du 1er Mai, Lycée Technique Po Aty BERNARD.

Today, these schools are faced with enormous problems. The difficulties undermining the technical and professional education system can be summarized as follows :

- Insufficient funds allocated to training ;
- Inadequacies between training and real needs of the economy of the country ;
- Insufficient infrastructure ;
- Lack of a rational policy of training of trainers ;
- Lack of permanent collaboration between the user and the Ministry of Education (Trainer);
- The sensitive problem of training programs not existing in certain schools, and inadequate and outdated programs in other schools ;
- Lack of follow up of the trained products.

Considering this dark picture, it was convenient to find efficient remedies for significant improvement.

- Descriptive analysis of structures responsible for securing the training ;
- The technical and professional training was provided by the Government of Congo and its partners ;

***The training cycles in the informal system***

*Private Sector*

- The companies, the Chambers of commerce
- the individuals
- Promotional training courses.

*Inter-State Sector*

- Inter-State School of health
- Inter-State School of Post and Telecommunications
- Inter-State School of Railways

***The Training cycles in the formal system***

3 training cycles are noted :

* *Pre-professional cycle composed of the following centers :*

. Agriculture Work Center (CMA)
. Agriculture Training Center (CFA)
. Industrial Work Center (CMI)
. Combined Industrial Work Center (CMIM)
. Domestic Science Work Center (CMAM)

* *First cycle*

. Technical College of Agriculture (CEIA)
. Technical College of Industrial Education (CETI)
. Girls'Technical College of Industry (CEIF)
. Mix Technical College (CETM)

* *Second cycle*

. Lycée for Technical and Agriculture Education
. Higher Technical College of agriculture
. Technical Institute
. Professional schools

* *High cycle : INSA, ENSET, IDR*

## THE POLITICAL WILL

An analysis of the evolution of Education in Congo since 1960 shows a few important stages each corresponding to the application of an educational policy with more or less defined contours, but whose common emphasis was the will to promote schooling. This means, as we will see, a constant progression in the size and the opening of schools all over the country. These stages are :

- 1960-1965 : before the nationalization ; cohabitation between a non religious state school education and a religious private school education existed. The education machine was marked with a neo-colonial non-dissimulated nature.
- The educational output, the structures, the programs and the technical (didactic) supports were built on the pattern of the ancient metropolis (mother country). However, this education distinguished itself by a bold conception of the school

policy : to secure a compulsory and free education for every citizen of Congo for 10 years. The 32/65 law of 12 August 1965 related to education stipulates : *"each child living in the Republic of Congo had the right, without distinction of sex, race, conviction, opinion or fortune, to education that provided full expansion of his intellectual, artistic, moral and physical capacities, as well as a civic and professional training"*.

- 1965-1970 : From nationality to 1970 symposium : The August 1963 Revolution modified the fundamental options of the Congo policy and changed the educational orientations. Within 2 years, the Government realized that its education goals were largely dictated by the religious communities, which were up to that time responsible for the administration of a large portion of the educational system.

That was when in spite of all opposition and with an unprecedented determination, the young Government of Congo took an important historical decision : the nationalization of Education all schools would be governed by a young economically poor Government but none of them was to be neglected.

- 1970 to 1977 was the beginning of the embryo plan of reforming the educational system. With the 1970 symposium as starting point, and the political project of building a school that would meet the expectations of the population of Congo, the people's school, became the professional school.

From 1970 to 1977 the original *Ecole du peuple* project document was subjected to many political debates. The mid 1970's also recorded high demographic growth in schools. All policies since independence had suffered the common ill which had been the lack of control in the absence of employment opportunities, over the flow of pupils to secondary schools after the primary education.

The system became very heavy and drained thousands of young people who had abandoned school as their educational background had guaranted them employment.

The idea of democratizing the education had changed the school into a park for the unemployed young population.

- 1977 to 1983 : Beginning of the implementation of the reforms and elaboration of new strategies. The reform was to integrate the educational development plan into the global development plan of the country. The basic idea of the reform was the concept of productive work.

This was to first and foremost, reconcile manual work with intellectual work through functions of productive work at school - there were these functions :

- the teaching function, by integrating theoretical education and practical activities (craftmanship, school gardens) ;
- the economic function, through the participation of school in funding their own activities in the national development effort ;

  - the establishment of the contents and the methodology of productive school work ;
  - conceptual work in selecting the method of elaboration of programs;
  - planning of training programs, elaboration of the education sector 5 year plan ;
  - holding the 1st seminar on technical and professional education (March 1982) ;
- The 1988 evaluational symposium pointed out the ultimate fall of the educational system and proposed a series of measures for its recovery. It required the realignment of professional training schools to the related Ministries.
- The 1991 Sovereign National Conference (CNS) confirmed the fall of the Public School. The Public School was aiming to raise the level of education of the population of Congo, to cover qualified and politically engaged personnel needed for economic development, for the consolidation of the national independence, and the construction of a social society.

  Its objective was :

  to train new crop of citizens who had a scientific conception of the world, competent patriots set to work the upliftment of the new society. Therefore, in order to recover from this situation, the CNS had taken several decisions aiming at :

  - reassessing technical education, professional training and apprenticeship, taking into account the countries socio-economic development needs ;
  - having all socio-economic partners actively participate in educational development ;
  - opening of training sections relative to the economic development of our country ;
  - renovating the equipment and structures ;
  - securing specialized training for trainers and team leaders ;
  - setting up a state Secretariat for technical education. The National Conference would also require the realignment of certain schools of religious groups which would request them.

The leading principles for the recovery of technical and professional education would necessarily be based upon :

- The professionalization of the technical training methods and the modernization of existing sectors leading to higher education.
- The setting-up of a new policy of acquisition of manpower in view of self-financing and auto-equipping our structures ;
- The opening of the National Education training structures to companies ;
- The redynamization of alternative training ;

- The improvement of the method of selection of Technical and Vocational Edducation inputs ;
- the control of usage of our structures ;
- Improving assessments and evaluation at the beginning, during and after the training ;
- Updating the programs ;
- Controlling the cost and funding of Technical and Professional Education ;
- Initiation to teaching by objective and continuous control of knowledge ;
- Reforming professional diplomas by creating at the end a Senior Secondary Technical School.

## INFLEXIBILITY OF SYSTEM, CONSTRAINTS AND ADJUSTMENT PROGRAMME OF THE EDUCATION SECTOR

### *Inflexibility of System*

At an enrollment rate of 160% Congo is among the countries in Africa which provides education for all children. There is a school building in each village of 200 inhabitants. This high enrolment rate is due to the democratization of education and several other incentive measures, which have had a negative impact on the quality of the educational system outputs in general and of technical and professional education in particular. A quick analysis shows that in secondary schools for example, there was lack of balance between General Education and Technical Education.

General Education counts about 90% of the educated population against 10% for technical, but this was not high enough to induce control over technical education flow, and many problems have then arisen.

The Technical and Vocational Education in Congo represents :

- The technical and Professional Elementary Education composed of :
  - CFA (Agriculture Training Center)
  - CMANC (Domestic Science Work Center)
  - CMI (Industrial Work Center)
  - CPA ( Professional Agricultural Center)

These centers were opened to young boys and girls of Congo aged 12 to 14, whose registration follow after they had successfully passed the entrance exam at the end of the Primary school. The duration of training was to be 2 years.

- First stage Technical and Vocational Secondary Education (Junior Seconday Technical and Vocational Education)
  - CET (Industrial and Commercial Colleges of Education)
  - CETF (Girls Technical College of Education)
  - CETA (Agriculture Technical College of Agriculture).

These colleges prepared for the Certificate of Technical Studies ( BET) with various options. The holders of this Certificate were admitted into technical high schools after they had successfully sat the entrance exam or they joined the unemployed category because of lack of professional jobs in the civil service. The Civil Service was the only alternative open until recently for the technical education graduates who were not very appreciated in the private sector.

- Second stage Technical and Vocational Education (Senior Secondary Technical and Vocational Education) was composed of :
    - Lycées of Technical and Agricultural Education
    - College of Agriculture
    - Technical Institute

These schools prepared students for the technical advanced level which opened the way to the higher cycle except for the technical institute which prepared students for the Brevet de Technicien which gave employment.

- The Technical and Vocational Education was composed of 3 schools :
    - ENSET (Teacher College of Education for TVE)
    - ISG (Higher Institute of Management) - first cycle
    - IDR (Institute for Rural Development)

The problems facing the Technical and Vocational Education could be summarized as follows :

- Lack of equipment, workshops and laboratories ;
- Large classes ;
- No balance between Teacher /pupils/ working posts ratio ;
- Insufficiency of qualified teaching personnel ;
- Invali programs ;
- Insufficient operation funds ;
- Bad quality Technical and Vocational Education ;
- Inadequate training versus employment opportunities.

*Constraints*

* Equipment, Workshops and Laboratories

One noticed a complete lack of policy with regard to equipment in Technical and Vocational Education. The equipment were mostly inadequate and did not suit the needs. The infrastructures also were old and misfit.

* Crowded classes

There was a lack of equilibrium between the Teacher/Trainers/Working post ratio. Over crowding was mainly recorded because policies related to admission in these schools were ignored.

* Staff members

In Congo, the teaching personnel in the Technical and Vocational Education was not adequately qualified. In general the training of trainers was to take into account of a certain number of parameters of which we could quote : the quantitative and qualitative satisfaction of the needs for trainers. It should be noted that the Higher School of Technical Education trained teachers for some options which did not exist in the Technical Schools at secondary level.

It did not however provide training for options like sanitary plumbing, carpentry, auto mechanics which exist in Secondary Technical Schools. The support staff (Inspection and admnistrative personnel) also lacked training.

* Programs

The existing programs were obsolete and needed to be updated. At times they did not even exist. An effort had been made to attune the programs of the College of Industry and Trade, but there was a lot to do if one really wanted to provide technical and professional schools with programs that met the requirements of Science and Technology.

It should be noted that the section on Education which was created within the National Institute of Research and Action on Pedagogy, the National Laboratory for all questions of Research and Program, was investigating and searching for funds in support of the development of new programme.

* Inadequacy of Training versus employment

The options leading to employment : fishing, wood work, refrigerating (industry) maintenance were not or were scarcely taught in technical and vocational schools. Therefore, the needs in planning were not satisfied by the educational system.

In the same way, the economic operators and the national private companies were not satisfied with the finished product of technical training. Paradoxically, they did not participate and do not contribute enough to the training given by the Ministry of National Education. This situation could be explained by the lack of liason between the economic operators and the structures charged with Technical and Vocational Education.

## THE SECTORIAL ADJUSTMENT PROGRAM OF EDUCATION

The present educational system evolved from a long historical process which started in a certain way with colonization - but mostly, especially in the case of Technical and Vocational Education, it was the product of the influence exercised by the West.

The West has had a variety of impacts on our societies. In many cases, these influences were simply imposed from the outside for military, economic or political reasons.

On the whole, Technical and Vocational Education was neglected more than other sectors of Education. It was during the last decades with the rise of technical economic and industrial progresses that technical education which was pushed to the background, took on a larger importance. Big investments in Technical and Professional Education with the purchase of equipment and the expansion of the five year plan 1982-1986 for transformation and construction purposes constitute the proof.

Despite the will of the Government of Congo to develop this type of Education which would foster, with no doubt, the development of our economy, the summary analysis today reveals that the Government alone can no more meet all expectations and should rely on other partners to take an active part in the system of education in general and technical and professional education in particular. The sectorial adjustment program of education is the proof that the Government of Congo is willing to actually save the education system.

The elaboration of PASE as a component of the Economic and Social Action Program (PAES) implies the setting of a certain number of administrative measures and of investment programmes in order to help the educational system in general recover from the present situation.

As for the Technical and Vocational Education, these measures aim at improving the quality of education (adaptation of programs, renovation of existing structures and equipment, enhancement of the professional component) and increase of infrastructure (development of new sectors) reorganisation of statutory documents.

* Situational Analysis

The solution to difficulties facing education in Congo cannot be attributed to high school attendance - this latter should rather be perceived as a source of problems. Despite the important financial effort of the Government and the pupil's parents, the working conditions have seriously deteriorated in the educational sector.

A few examples can illustrate this deterioration such as : insufficient and old classrooms, insufficient teaching material, high failure rate at exams, non adaptation of technical education which offers few technical competencies.

In summary, the school has not met the target of the 1982-1986 plan for development.

* Global Setting

The preceding studies have definitely called for the socio-economic environment of education during the elaboration of the Economic and Social Action Program (PAES). The economic situation and its impacts on education at the time the PASE was adopted can be presented as follows :

*Economic Context*

- Continuing economic recession ;
- Trends to regression of the economic activity in lieu of significant and continual boosts ;
- Lack of Government funds allocated to investment ;

- Cutting down of public employment.

From 1986, the fall of the price of oil and the degradation of the country economic situation imposed a reorientation of the Government economic policy aiming at balancing the assets and ensuring a fresh start to the economic growth by allocating more adapted effective resources to comparative advantages of the country and a balanced role of the Government and the private sector.

The austerity imposed by an unbalaced economy led to an important reduction of the investment operation budgets of the public sector in general, and education in particular.

### *Impacts on Education*

- Lack of infrastrucutre for the growth in technical and vocational training ;
- Declines in training and closures of certain sectors ;
- Deterioration of working conditions ;
- Reinforcement of deficit in teaching and administrative personnel.

The Education Structural Adjustment Program (PASE) took into account the analysis of the education system which pointed out great weaknesses, the mal functioning points and defined the action priorities.

### *The Great Weaknesses of the Education/Training System*

From the point of view of a inherent quality :

- The over crowding of classes contributed to un-coltrolled democratization of education. At the level of professional centers, this problem seems to be resolved with the rigorous application of recruitment policies as of 1989 and the suppression by Government of the entrance exam to training schools. T his measure led to closing certain training sectors and to an over sized personnel (SF for example).
- Inadequacy of infrastructure and classrooms.

  Most of the technical schools are renovated buildings inherited from colonialists. In some schools there is practically no equipment, and the Government cannot afford to buy more because of their high cost.
- Unqualified personnel.

  There is an alarming lack of qualified personnel. The best technology only lies in the hands of those who know how to make use of them therefore it is an imperative necessity to engage qualified personnel.
- Lack or bad use of teaching material ;
- A slight decrease in the duration of apprenticeships ;
- The high rate if pupils staying in a class for a second year and a very low internal output marked by massive failure at exams.

*The System Management Level*

- A very informal management : data is not controlled ; the administrative structures at all levels do not function properly ;
- Poor or lack of management and administrative tools ;
- A deep lack of balance in the budget (the biggest part of budget is personnel expenses).

*Training Level and External Effectiveness*

- Under represented technical education and insufficient development of professional training.
- Training programme contents are non appropriate for the needs of development of craftmanship, of PME and PMI.

*Strategies and Main Action Guidelines*

The strategy adopted was to :

- Reorientate efforts toward realistic objectives and the research of quality and effectiveness of the system.
- Summon up and ensure the profitable internal ressources.
- Offer youth a diversified professional training.

To do so, action was to be taken :

- to control the manpower systems
- to increase the quality component of Education especially in school programs, teaching materials and training of trainers.
- to improve technical education and increase the professional training capacities.

## FUTURE PROSPECTS

The economic and financial crisis facing our country have aggravated the loss of quality of education because of the growing decrease in resources affecting the educational system. Considering the seriousness of the crisis, it has been demonstrated that the Government is no longer capable of supporting the weight of funding education. Therefore, the possibilities of looking for other sources of funding for the education sector has been foreseen. Hence the adoption by the Evaluational Symposium held in 1988 of a New Plan for Education Funding.

This plan consist of further involving local community, private enterprises, and economic operators in educational expenses. The absence of an administrative law did not help with the control of its application.

In any case, this plan was very timid and would not help even if implemented, satisfy the crucial problem of funding our education sector in general and technical and professional education in particular.

In spite of Government and parents efforts, technical and professional education has been exposed to financial crisis. The inadequacy of training and employment has deepened to the level where it has become necessary to set up a new plan for technical and professional education. This new plan puts particular emphasis on professionalization of training, the alternative training School/Enterprise, the development of traditional and modern apprenticeship, and in-school productive activities.

It is therefore a question of setting parallel the traditional training sectors that prepare for the technical Education Certificate and the Technical Baccalaureat, new sectors, completely vocation oriented which prepare immediate qualified and acceptable employment on the market.

These adjustments would put an end to the present situation where the Brevet d'Etudes Moyennes Techniques (BEMT) and the Baccalaureat de l'Enseignement Technique do not guarantee the possibility either to easily continue the jobs studies or to effectively and efficiently work in areas they have been trained for. Thus, there will be training sectors which will lead to the efficient and effective acquisition of knowledge necessary for exercising a job, parallel to traditional sectors which were up to then ambivalent and leading up to high secondary school or university.

These traditional sectors should be thoroughly reformed in order to be adapted mainly by reinforcing general efforts made by the Government and with the help of bilateral cooperation, a few professional sectors have been created in colleges and lycées of technical education.

As an example, the sector of mechanical and electrical sectors created at May 1st CFT, the wood sector at CFT Mansimou, diesel engine sector at CFT in Pointe Noire (Secretarial Sciences), Informatics at the lycée Technique du 1er Mai. Future projects involve: refrigerating and air-conditioning, sanitary plumbing, mechanical work. The final objective would be to create in all existing schools, vocational sectors in all employment generating fields in order to realise a population of trained workmen and technicians capable of giving satisfaction to the entreprises. Possibilities would then exist to open their own business, instead of expecting employment in an already over crowded civil service. To reach these objectives, Congo counts on international help and support from local entreprises.

## GIRLS IN TECHNICAL AND VOCATIONAL EDUCATION : EVOLUTION AND STATISTICS

In the People's Republic of Congo, men and women have equal access to various types and levels of technical and professional education. Women traditionally present in fields such as education, health and general Administration, are now showing a growing interest in the training sectors which have been until now male oriented such as workmen, engineers (in electricity, electronics, mechanics, wood work, agriculture and architecture).

The awareness of girls in technical and professional education started toward 1970 with admission in technical college annexed to the Lycée Technique d'Etat of Brazzaville, for young girls coming from general education schools (classe de 5ème).

Despite this constant predisposition of girls to opt for technical and vocational education, the need to undertake some reflections toward solving the problem of selection or specific recruitment has become urgent.

We have to :

- redefine the admission criteria at the level I and II schools but respect training vocations and policies ;
- try to correctly comply with the conditions set forth by the labour laws in force in the country.

This redefinition should effectively spell out the following aspects : level of recruitment, Age, and Physical state.

Compliance with this guideline should help train within the required conditions, the young female trainee capable of expressing herself adequately in a professional setting. The following statistical table of the size of pupils illustrates this evolution.

Table 1 : **The Female Students at Secondary Technical Schools Level**

| YEAR | 1989-1990 | | 1990-1991 | | 1991-1992 | |
|---|---|---|---|---|---|---|
| *GENDER* | *M* | *F* | *M* | *F* | *M* | *F* |
| **E. N. B. A.** | 119 | 45 | 180 | 28 | 38 | 10 |
| **E. N. M. A.** | 209 | 83 | 145 | 86 | 88 | 40 |
| **E. N. E. F.** | 39 | 07 | 26 | 02 | 13 | 02 |
| **INSTITUT TECHN.** | 120 | 19 | 74 | 26 | 67 | 11 |
| **E. N. I. OWANDO** | 118 | 59 | 75 | 11 | 30 | 11 |
| **E. N. I. B/VILLE** | 82 | 33 | 00 | 18 | 23 | 41 |
| **E. N. I. DOLISIE** | 80 | 66 | 65 | 27 | 23 | 13 |
| **LYCEE TECH. 1ER MAI** | 1760 | 2340 | 2105 | 1660 | 2290 | 1325 |
| **LYCEE TECH. P.B.** | 417 | 236 | 643 | 211 | 700 | 210 |
| **L.A.A.C** | 499 | 377 | 705 | 174 | 531 | 297 |
| **LYCEE AGRIC. OUESSO** | 74 | 23 | 43 | 11 | 53 | 10 |
| **TOTAL** | **3527** | **3288** | **4061** | **2254** | **3864** | **1967** |

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## TECHNICAL AND VOCATIONAL EDUCATION AND ITS ASPIRATIONS

### *Requirements of the Employment Market and Training Programmes*

* Requirements of the Employment Market

This section deals with some effects of the economic crisis, and the structural adjustment of education and training, which help acquire qualifications and knowledge likely to contribute to economic growth and to social welfare ; but there are two different concepts which if absent or inadequate could be prejudicial in many ways to such economic growth and social welfare.

A good level of education and a complete and well conceived training system could have impacts on society which would soon be oriented toward a market economy in opposition to the former targeted economy.

Education and training help everyone acquire the knowledge and qualifications necessary for them to satisfy their needs and to take an active part in the economy and social life.

This is the principal reason why the enhancement of programs and training by means of education and training should constitute the background for any policy regarding economy and employment. This is also why we believe, without doubt, that education and training contribute to the growth and economic development. Education and training provides the individual with means to improve his productivity, but also to open up his mind. Moreover, better qualifications and more knowledge means a better security of training programs.

On this front, some progress has been made. These are closely related to education and development of our country, education and the world of employment. They take into account the relevance of school and the out-of-school system, and meet the objectives and needs of the population of Congo and the national economy.

- Updating the existing vocational training working tool within the context of our education system ;
- Reorganization, modernization and restructuring of present school with organized working posts ;
- Revision of programs, contents, initiation to teaching by objectives, setting up training by alternating school/entreprise, revalorization of diplomas, reconciling school with the world of work ;
- Creation of new training sectors (and closure of out of date sectors) in relation to the economy ;
- Creation of newly developed schools in the technical education setting, at professional centers, particularly, the promotion of agricultural education, social education, adapting training to regions ;
- Selection of candidates entering 1st and 2nd stages of technical and professional education ;

- Reorientation of technical sectors in secondary school, transformation of present parts into training leading to level of technicians ;
- Improvement of information, dissemination of innovations ;
- Reorganization of traditional and modern apprenticeship.

It is necessary to foresee a technical and professional education state based on apprenticeship in order to meet the training needs.

Presently, there is no policy to control training by apprenticeship, not even for a modest training by the Ministry of Labour, the National Agency of Craftsmanship and the private centers.

This is the reason why professional training education was structured, thus reinforcing and diversifying professional training to help youth succeed.

Requirements :

- A series of preliminary surveys to record existing training possibilities within the setting of collective or individual apprenticeship;
- The inventory of infrastructures ;
- The proposal of an orientation rules ;
- The setting up of a selection system, follow up and control over training ;
- The development of apprenticeship pedagogy and methodology ;
- Institutional and financial rules ;
- The proposal of a flexible structure for training centers based on apprenticeship experience ;
- The study of apprenticeship in craftsmanship, in other words, within an enterprise that in general does not emply more than ten paid staff.

## TRAINING PROGRAMMES

### Programs of Colleges and Lycées *(Secondary Technical Schools)*

If the programs of Colleges and Lycées of Technical education in our country had once became heavy and unsuitable to realities of the employment market, today, it appears that the rapid growth of new sciences, technologies and techniques are a handicap in spite of the multiple efforts and attempts to draw us nearer to the employment world, as far as the working methodology, documentation and follow up are concerned. The impacts can be felt in the level of knowledge and practice of students.

Measures of recovery have been set forth, namely :

- The adoption of a strategy for the Baccalaureat ;
- The definition of contents based on respective potentials of schools ;
- The donation of materials and books to school ;

- The creation of a committee for programs in order to undertake an in depth analysis of programs by objectives and continuing follow up on technical secondary education by associating the economic operators or their representatives, the teachers and the specialists of program elaboration ;
- The setting up of new secondary school programs.

### *New Training Sectors*

The situation described above has urged the Government to find a solution to the crucial problem of the training - employment ratio by creating the following new school - enterprise trainings :

*Informatics* (office computer work)

Hosted by the Lycée Technique du 1er Mai, the training affords the possibilities to students earning a BEMG and being selected after examination to have a Brevet de Technicien after 3 years school and on the job training.

*Wood Work*

The Technical Education College Alphonse KINTOMBO of Mansimou is specialised in wood trades (carpentry, wood work). There are 2 parts of course : the first part prepares for the Brevet Techniques (BET- Certificate of Technical Studies) over 4 years training of which 2 years are the preparatory cycle. The second part prepares for the Brevet d'Etudes Professionnelles (BEP - Certificate of Professional Studies) over 2 years.

This section also helps in the training and refresher courses of craftsmen by improving their professional ability.

*Maintenance of Mechanical and Electrical Systems*

2 years training on school infrastrure of the Technical Education College of May 1st, based on the principes of maintenance.

The objective is to :

- provide technical autonomy vis à vis the Master to be able to perform on ones own initiative an act of maintenance ;
- provide organisational faculties in order to ensure one's own logistics and to manage punctual maintenance operations with private enterprises or small and middle enterprises in one's locality, town, region.

* Heavy Engines and Diesel

This section is located in the Technical Education College of August 12 in Pointe Noire. This is where industrialists are trained. The results from these new sectors are very encouraging. Other employment general sectors need be discovered in order to be able to reorientate the youth.

*Programmes of the New Sectors*

The programs of the new sectors aim at defining the contents of curriculum of the general education supporting the fields Brevets d'Enregistrement Professionnel (B.E.T, B.E.P).

A system of reference has been set up for each non professional and professional field of the newly created diplomas. The systems disclose the expected requirements of the candidates. They are conceived to be useful irrespective of method of gaining the diploma, and the mode of evaluation. They are established as clearly readable, accessible and possible in order to be disseminated and utilised, and define the aptitudes, knowledge and practice that the candidate should acquire.

## TRAINING OF TRAINERS, THE FUTURE OF TECHNICAL AND VOCATIONAL TRAINING

### *Training of Trainers*

The Technical Teachers' College (Ecole Normale Supérieure d'Enseignement Technique (ENSET)

*Organisation of Studies*

The ENSET training system is composed of two parts :

- The short term training leading to teaching in Technical Colleges ; this is a 3 year training program after the Baccalaureate.
- Long term training leading to teaching in technical lycées ; this is a 5 year training program after the Baccalaureate. ENSET has two departments : the Department of Industrial Techniques ; the Department of Administrative, Economic and Social Techniques.

Each department is composed of 3 sections with well defined training such as :

Department 1 :
- Civil Engineering
- Mechanical Engineering
- Electrical Engineering with sub sections :
    * electrotechnics
    * electronics

Department 2 :
- Sciences and Administrative Studies
- Sciences and Economic Studies
- Sciences and Social Studies.

The ongoing training is meant for students who will teach in Junior Secondary Technical Schools and in Senior Secondary Technical Schools.

The curricula are organised as theory courses, practical work, controlled work and on the job trainings. For production and on-the-job trainings, these are organised for short term trainees respectively within private enterprises and schools. For the long term, there is no practical course in production. The teaching practice runs from February to May in the last year class of the technical lycées.

* *Recruitment*

For the access to the Teacher College the recruitment is done by the Orientation and Scholarship Administration office.

i) Based upon the diploma Baccalaureat or equivalent

- Section F for industrial techniques
- Section G, BG for administrative and economic techniques
- Section C, D for Social Sciences.

From academic year 1991-1992, the recruitment has been based on the results of the entrance examination.

Foreigners are admitted by the Rector upon presentation of their academic records from their country of origin.

ii) Based on examination, organised every year during the month of March for entry to the preparation year of short term training, opened to teachers of technical education colleges who do not have the professional aptitude certificate of technical education colleges (CAPCET) and three years teaching experience with the grade of Deputy Technical Teacher (PTA) in a technical education college.

The number of available seats represents 1/3 of the size of the 1st year classroom.

In summary, it is noted that there is a difference in the training levels of teachers who prepare the pupils for different certificates of technical studies (BET). No real solution has been found to eradicate this problem.

## THE TECHNICAL EDUCATION REFLECTION COMMITTEE (CRET)

The Technical Vocational Education is supported in its work by the Reflection Committee, located in the National Institute for Research and Pedagogic Activities. The Committee is under the supervision of the Project Chief of Party. The advisers offer administrative, technical and pedagogic support to research, induce and set up training services by insuring development and follow-up.

The advisers contribute to informing partners, analysing the situations and participating in :

- determining training objectives ;
- negotiating services ;
- choosing the means ;
- assisting with teaching ;
- transferring knowledge ;
- follow up ;

They work in collaboration with the Inspectorate of Technical Education, the School directors and different partners in the education system.

## THE FUTURE OF TECHNICAL AND VOCATIONAL EDUCATION

The general objective is to rehabilitate technical education and professional training : it is in the same vein as the expectations from the different audits, the reform of education and the results of the evaluation symposium of 1988.

### *Employment Policy*

The measures imposed for the economic recovery, aggravated the employment status which was already poor.

- Reduction of the duration of compulsory schooling, the reduction of size in the different education stages, which implied a more rigorous selection at the entrance level, and in the short term to an increase of the number of young adults looking for jobs ;
- Limits on the recruitment to the civil service will restrict employment opportunities for young graduates.

The structural reorganisation of public enterprises generates dismissals. This implies an increase in the number of unemployed.

It is therefore obvious that the anticipated measures should be associated with a new orientation of the employment policy.

### *Evaluate the Employment Supply and Demand*

The current and planned employment demand (it appears that the unbalanced situation of the employment market does not exclude the existence of a non-satisfied supply due to shortages of the required expertise). It is therefore important to be equiped with real means of data collection, of analysis and estimation of the employment market.

### *Training by Alternating*

*To Organise the Dialogue between Social Partners :*

Today, such dialogue seems necessary to be able, first together at the enterprises level, to define the conditions capable for the creation of jobs and secondly, to orientate the professional training based on estimated needs. Also, such a policy can only be implemented if it is supported by legal documents outlining the nature of advantages which could be accorded by the administration and the extent to which these advantages could be accorded. It is important to anticipate this legal disposition. This perspective which should necessarily be seen in liaison with the economic actors, will help to get a clear analysis of the reorientation of the school training mechanism, technical and professional, and also in the short term set up vocational oriented training that is needed and also to improve the conditions of use.

*To Assemble all Means of Professional Training :*

The improvement of the vocational training system was urgently needed. In fact :

The majority of youth trained by the education system went through a general education which more or less prepared them to enter the employment sector .

Because of lack of resources, public institutions were not able to offer proper quality education. This contributed to largely slow down employment opportunities.

That is why the implementation of a series of measures aiming at better satisfying the professional training needs constitutes a fundamental component of employment policy.

There are two ways to get this : by utilising training centers that public enterprises would decide to create within their structured settings (this has a two fold advantage : to avoid the disappearance of existing centers and allow wider use, therefore more economy ; and to negotiate contracts for the use of existing training equipment).

### *Training by Apprenticeship*

Funding training organised by the planned system should be charged to Government alone. Interested parties should also contribute. Achievement of the above defined objectives calls for a complete renovation of the employment management and training systems.

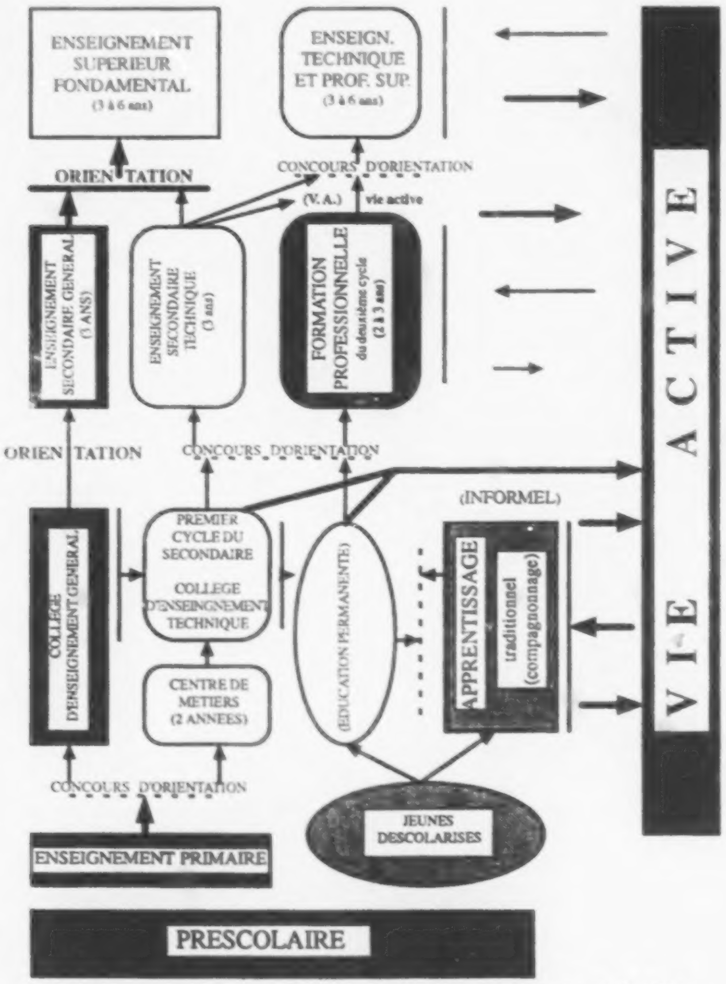
A professional training administration unit should be set up in order to :

- permanently evaluate the means of implementation and urge the creation of apprentice training centers in the fields that are useful ;
- choose and orientate candidates toward training based on needs and means (on-the-job training in enterprises or training cycles) ;
- define the relationship between partners (employers, training centers, training institutions) and participate in the development of social plans for enterprises and craftsmen.

*To Orientate the Policy of Apprentice Training Centers*

A concertated unit between Government and economic actors will have to be set up to evaluate the estimated training needs.

ORGANIGRAMME DU SYSTEME EDUCATIF CONGOLAIS
(situation actuelle)


ENSEIGNEMENT SUPERIEUR FONDAMENTAL (3 à 6 ans)
ENSEIGN. TECHNIQUE ET PROF. SUP. (3 à 6 ans)
ORIENTATION
CONCOURS D'ORIENTATION
(V.A.) vie active
ENSEIGNEMENT SECONDAIRE GENERAL (3 ANS)
ENSEIGNEMENT SECONDAIRE TECHNIQUE (3 ans)
FORMATION PROFESSIONNELLE du deuxième cycle (2 à 3 ans)
ORIENTATION
CONCOURS D'ORIENTATION
(INFORMEL)
COLLEGE D'ENSEIGNEMENT GENERAL
PREMIER CYCLE DU SECONDAIRE
COLLEGE D'ENSEIGNEMENT TECHNIQUE
CENTRE DE METIERS (2 ANNEES)
(EDUCATION PERMANENTE)
APPRENTISSAGE
traditionnel (compagnonnage)
VIE ACTIVE
CONCOURS D'ORIENTATION
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# CHAPTER 4

# TECHNICAL AND VOCATIONAL EDUCATION IN GHANA

*F. A. BAIDEN*[*]

## THE SOCIO-ECONOMIC SITUATION

Ghana at independence in 1957 enjoyed about the largest income per head of population in sub-Saharan Africa and, with her cocoa exports booming, she had vast foreign exchange reserves. However, from 1965 the economy of Ghana began to deteriorate steadily up to 1983. There was a persistent decline in all sectors of the economy. Marked deterioration was noticed in critical infrastructure, including roads, railways, electricity, telecommunications, health and educational facilities as well as industrial plant, which showed visible signs of decline nationally. There was a decline in the production of cocoa, the country's largest foreign exchange earner. Ghana's share of the world market in cocoa had fallen from about a third in the early 1970s to only about 12 percent in 1982/83. Food production also fell, with a fourfold increase in food imports in the decade to 1982.

Similarly, there had been a drop in the production of minerals, the country's second major source of foreign exchange. Output of gold, bauxite and diamonds had fallen steadily. Energy supplies had failed to meet the growing needs of industry, with oil imports being restricted by foreign exchange shortages and locally generated hydro-electricity unable to make up the shortfall. Also there was a shortage of other petroleum products, the prices of which rose sharply. Consequently, there was a fall in capacity utilization in manufacturing. The effect was a sharp drop in the GDP. The Government that came to power in December, 1981 inherited severe financial problems with unbalanced budgets, leading to rapid increases in money supply. This, with persistent shortages of consumer goods, had led to high inflation. Decline in exports had contributed to huge balance of payments deficits and build-up of external arrears.

More fundamentally, the country's human resources also underwent severe strain, with over 2 million Ghanaians leaving the country in search of better opportunities elsewhere. There was a severe shortage of manpower in the agricultural sector. It was against this background of economic chaos, immense human suffering and loss of national pride that the Government in 1983 launched the IMF-backed Economic Recovery Programme (ERP), under which it took steps to reverse many of the economic policies of previous regimes and began to implement far reaching structural and financial reforms designed to create a buoyant economic growth. It succeeeded in allocating resources more widely throughout the country, moving the economy from several years of decline to steady real growth averaging 5 percent from 1985 to 1993. Unfortunately, in 1994 Ghana's economy has not performed as well as expected. The high rate of inflation, the steep decline of the Cedi (Ghana currency) and the high interest rates have adversely affected growth of business and purchasing power of the people.

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### *Employment Status*

Ghana's population in 1990 was estimated at 14.1 million and with an estimated annual growth of 2.6 to 3% the population is expected to increase to between 18.7 million and 19.5 million by the year 2000.

Like the situation in most developing countries, data on employment and the labour market in Ghana are scanty and incomplete. The latest (1984) Ghana Population Census revealed the following information on employment status of the population and its distribution by sector (see Tables 1 and 2).

Table 1 : **Population, Labour Force and Employment Status ('000)**

| | | N° | % |
|---|---|---|---|
| A. | Total population | 12,296 | |
| | Total labour force (15+) | 5,581 | |
| B. | Economically active populations | 5,581 | |
| | - Employed | 5,423 | 100,0 |
| | Urban | 1,640 | 30,2 |
| | Rural | 3,784 | 69,8 |
| | Unemployed | 158 | 100,0 |
| | Urban | 105 | 66,5 |
| | Rural | 53 | 33,5 |
| C. | Employment Status | 5,423 | 100,0 |
| | - Wage employment | 877 | 16,2 |
| | Self employed | 3,788 | 69,7 |
| | Unpaid family workers | 680 | 12,5 |
| | Others | 88 | 1,6 |
| D. | Wage employment | 877 | 100,0 |
| | - Central Government | 311 | 35,5 |
| | Public Books | 242 | 27,6 |
| | Private enterprises | 320 | 36,5 |
| | Others | 4 | 0,4 |
| E. | Self employed | 3,788 | 100,0 |
| | - Without employees | 3,522 | 93,2 |
| | With employees | 256 | 6,8 |

*Source : ILO/JASP, Employment Mission Report (Addis Ababa,1989)*
*JASPA - Jobs And Skills Programme for Africa*

Table 2 : Employment distribution by sector ('000)

| Sector | 1984 |  | 1987/88 |  |
|---|---|---|---|---|
|  | N* | % | N* | % |
| Agriculture | 3,311 | 61,1 | 4,203 | 66.1 |
| Mining | 27 | 0.5 | 69 | 1.1 |
| Manufacturing and Utilities | 588 | 10.9 | 436 | 6.9 |
| Construction | 65 | 1.2 | 80 | 1.3 |
| Transport and Comm. | 792 | 14.6 | 857 | 13.5 |
| Finance and Business Services | 27 | 0.5 | 24 | 0.4 |
| Government Services | 474 | 8.7 | 557 | 8.8 |
| Total Employment | 5.422 | 100.0 | 6.354 | 100.0 |
| Unemployment | 128 |  | 123 |  |
| Labour force | 5,580 |  | 6,477 |  |
| Unemployment (%) | 2.8 |  | 1.9 |  |

*Source : ILO/JASPA, Employment mission report*

(Details regarding the sectoral distribution of labour can be obtained from the census data for 1984 and the 1987/88 Ghana Living Standards Survey).

## HUMAN RESOURCE DEVELOPMENT

Improvements in the quality of human resources are crucial to the economic, social and political development of any country. Education and training, which are the major means of developing human resources, influence socio-economic development because they increase the productivity of the labour force and endow it with increased knowledge and skills. Individuals with higher education are regarded as being more productive ; hence they are offered better employment and wage opportunities than individuals with low education. Also people with a high level of education tend to have greater motivation to work than people with little or no education. Finally, education and training provide employment and income-earning opportunities for teachers, school workers, printing and publishing industry, school uniform manufacturers, etc., and they create an environment for changing social attitudes relevant to economic development.

To help maintain the economy of Ghana on the path of steady growth and to improve the social and political life of the people, therefore, there is the need to develop her human resources.

### *Major Constraints*

Since the mid-1960s, however, there have been two major problems relating to human resource development in the country, namely :

i) lack of skilled personnel in certain critical areas of the economy ; and

ii) surplus in certain categories of skills due partly to a decrease of employment opportunities in the formal sector.

There is growing unemployment among the educated in the formal sector because growth in job openings has not kept pace with the number of new entrants into the labour market for the educated. There is at the same time a persistent shortage of occupational and

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technical skills in many areas of the economy, especially in the public sector, which has, to some extent, made it impossible for certain programmes for the effective management of the economy to be undertaken. This has resulted from the formal educational system which, by emphasizing the study of academic subjects without any preparation for a job, did not adequately serve the socio-economic needs of the individual, of the society in which he lives, nor of the country as a whole.

Three major means can be applied to counteract these problems, namely :

i) formal education and training in educational institutions from the first-cycle to the tertiary level ;

ii) non-formal education comprising mainly adult literacy programmes and skills development programmes ; and

iii) informal training comprising the apprenticeship system, extension services and education through the mass media including newspaper, journals, radio and TV.

Further to these problems, financial resources have since the late 1960s been increasingly scarce in relation to the demand for places at all levels for all forms of education due to rapid population growth and the demands on the resources of the country.

It is the realization of the above deficiencies, among others in the former educational system that has prompted the Government of Ghana to reform the entire educational system from the primary to the tertiary level. It is expected that the on-going educational reforms will result in the provision of quality education that will fulfil the goals and aspirations of pupils and students and at the same time meet the socio-economic needs of the country.

## THE EDUCATIONAL SYSTEM

### *Management and Administration*

The Ministry of Education is responsible for formulating policies, preparing plans and monitoring the implementation of educational programmes. The Ministry, which is headed by the Minister for Education, has the following Divisions under it :

i. School Education
ii. Tertiary Education
iii. Non-Formal Education
iv. Administration and Finance
v. Planning, Budgeting, Monitoring and Evaluation.

The Tertiary Education Division of the Ministry is responsible for implementing policies and programmes relating to tertiary education, which is delivered at the Universities, the University Colleges, the Polytechnics and similar institutions.

The Ghana Education Services (GES) was established in 1974 as part of the Public Services of Ghana by the National Redemption Council Decree (NRCD 247) of 1974. It is the largest of the bodies under the Ministry of Education, and has the responsibility of implementing pre-university educational policies formulated by the Ministry of Education. It is headed by a Director-General, who is assisted by two Deputy Directors-General, ten Directors and two-Coordinators at the Headquarters.

The Director-General of the Ghana Education Service works through the Deputy Minister in charge of the School Education Division of the Ministry of Education to the Minister for Education. One of the two Deputy Directors-General is responsible for school operation programmes (i.e. Basic Education, Secondary Education, Teacher Education, Technical and Vocational Education, Special Education, Physical Education, Cultural Studies and Curriculum Research and Development), whilst the other oversees over Manpower and Training, Supplies and the Inspectorate.

At the Headquarters level, there are ten Divisions of the Service, namely Basic Education, Secondary Education, Teacher Education, Technical and Vocational Education, Special Education, Manpower and Training, Supplies, Curriculum Research and Development, Administration and Finance, and the Inspectorate, each headed by a Director. There are also Physical Education and Cultural Studies Units headed by Co-ordinators, both within the Director-General's outfit.

There is also a Regional Education Office, headed by a Regional Director in each of the ten Regions of the country, whilst there is a District Education Office in each of the 110 districts headed by a Director.

The Ghana Education Service is charged with the responsibility to :

a) administer, manage and inspect pre-university educational institutions;
b) register, supervise and inspect private schools ;
c) provide teacher education, general education, special education (as education of the handicapped), and technical and vocational education ;
d) arange to register teachers and maintain professional standard and conduct of teachers ;
e) maintain a code of ethics and good conduct among teachers.

### *The Former Structure*

In the past the structure of education in Ghana consisted of three levels :

i. First-Cycle or Elementary Education

This level was made up of 6-year Primary Education and 4-year Middle School Education;

ii. Second-Cycle Education

This level comprised the education provided in the following categories of institutions :

- Secondary Schools providing 5-year secondary education followed by 2-year sixth form education
- Technical Institutes
- Vocational Schools/Training Centres
- Teacher Training Colleges providing 4-year post-middle programme/course. (This programme/course was phased out completely in June 1991).

NB : Institutions which were post-secondary but were treated as second-cycle institutions included the following :

- post-secondary Teacher Training Colleges.
- Polytechnics

iii. Institutions of higher education comprised

- The 3 Universities
- the 7 Diploma-Awarding Institutions.

*The Present Structure*

Currently, Ghana's educational structure based on the 6 + 3 + 3 + 4 system under the new Educational Reform Programme consists of three levels as mentioned below : (See Appendix 'A').

i. First Cycle or Basic Education

This level is made up of 6-year Primary Education followed by 3-year Junior Secondary Education.

ii. Second-Cycle Education

This level of education is provided in the following categories of institutions ;

- Senior Secondary School (3 years)
- Technical Institutes
- Vocational Schools/Training Centres
- Other post-basic educational institutions

iii. Tertiary Education

This level of education comprises the following institutions :

- The 4 Universities and the University College of Education, Winneba.
- The 6 Polytechnics.
- a number of pre-service training institutions which are primarily career or work-oriented. (These pre-service training institutions include Nurses' Training Colleges, Agricultural Colleges, Forestry School, Veterinary School, and 38 initial Teacher Training Colleges (10 of which offer technical subjects).

NB : It is envisaged that these institutions, which are spread all over the country, will be grouped together and managed regionally as Regional colleges of Applied Arts, Science and Technology (RECAAST).

## OBJECTIVES AND CONTENT OF EDUCATION

### *Pre-School Education*

This level of education covers the ages of 2-6 years. It is made of $1^{1/2}$ to 2 years Nursery and $1^{1/2}$ to 2 years Kindergarten, which together constitute pre-School Education. It is not compulsory. Pre-School Education has the following objectives :

i. to provide a home substitute for young children and offer them opportunities for overall personal development ;

ii. To provide opportunities for holistic development of the child through organized individual and group play activities ;

iii. To create awareness in the children of their national heritage and culture ;

iv. To pre-dispose the child to conditions of formal education in order to accelerate the learning process during formal schooling ;

v. To lay a solid foundation for all-round learning.

### *Basic Education*

The national policy on Basic Education stipulates that all children from the age of six should receive nine years formal education as a matter of right.

The nine-year basic Education programme is made up of six years Primary Education and three years Junior Secondary Education.

### *Primary Education*

a) Primary Education, which is of 6 years' duration, constitutes the foundation of the educational system.

b) Primary Education has the following major objectives among others :

  i) Numeracy and literacy, i.e. the ability to count, use numbers, read, write and communicate effectively ;

  ii) Laying the foundation for inquiry and creativity;

  ii) Development of sound moral attitude and a healthy appreciation of our cultural heritage and identity ;

  iv) Development of the ability to adapt constructive to a changing environment ;

  v) Laying the foundation for the development of manipulative and life skills that will prepare the individual pupils to function effectively to their own advantage as well as that of their community;

  vi) Inculcating in the pupils good citizenship education as a basic for effective participation in national development.

c) These objectives have been incorporated into a revised national curriculum comprising the following subjects for all Primary Schools :

Mathematics
Sciences
Social Studies
Cultural Studies
Ghanaian Languages
English
Agriculture
Life Skills
Physical Education

*Junior Secondary School*

a) The Junior Secondary School forms an integral part of compulsory Basic Education; It is both terminal and continuing.

b) The curriculum of the junior Secondary School has been reviewed and expanded to include practical skills orientation. Consequently, in addition to the general subjects, the curriculum has been designed to provide opportunities for pupils to acquire basic pre-technical, pre-vocational and basic life skills which will enable the pupils to :

i. discover their aptitudes and potentialities so as to induce in them the desire for self-improvement;

ii appreciate the use of the hand as well as the mind and make them creative.

c) The following subjects comprise the curriculum for the Junior Secondary School :

- Mathematics
- English Language
- Science
- Agricultural Science
- Social Studies
- French (Optional)
- Physical Education
- Basic Technical Skills
- Technical Drawing
- Vocational Skills
- Cultural Studies
- Life Skills
- Ghanaian Language

d) Every pupil is expected to study all the subjects. Twelve vocational subjects have been approved for study in the junior Secondary Schools throughout the country. Each school is required to select for study two of those subjects for which materials are available locally.

e) The junior Secondary School course forms the major part of the all-embracing educational reform programme, which took off in September, 1987. The main thrust of the on-going educational reforms is the vocationalization of education - i.e. making education vocationally oriented by the introduction of pre-technical, pre-vocational skills right from the Basic Education level.

### *Second-Cycle Institutions*

More than 35 percent of the pupils who complete the Junior Secondary Schools enter second-cycle institutions, of which there are two kinds, namely :

- Senior Secondary Schools (public and private)
- Technical Institutes (public and private)

However, in the case of the second-cycle institutions under the Ghana Education Service alone, the total annual intake of Junior Secondary School graduates is about 356% as can be seen from Table 3 below.

Table 3 : **Intake Into Second-Cycle Institution Under the Ghana Education Service**

| YEAR | | INTAKE | | | % = 100 D/A |
|---|---|---|---|---|---|
| | A | B | C | D | |
| | Basic Ed. Certifi. Exam Candidates | *Sencodary Schools* | *Technical Institutions* | *TOTAL* | |
| **1991** | 147,249 | 49,277 | 4,022 | 53,299 | 36.20 |
| **1992** | 165,359 | 54,618 | 4,320 | 53,938 | 36.64 |
| **1993** | 181,824 | 58,537 | 4,492 | 63,029 | 34.66 |

### *Senior Secondary School*

Education at this level is designed to cater for students of ages 16 to 18 years and lasts for three years after the nine years of Basic Education. As part of the educational reforms, the Senior Secondary School has been designed to offer the students the opportunity to build on the foundation laid at the Basic Education level and to strengthen the general intellectual knowledge and skills that are required for occupations and for further education. The three-year programme is to cater for various aptitudes in the fields of technical, vocational, agricultural, business and general education.

A curriculum relevant to the socio-economic development and manpower requirements of the country has been developed for the Senior Secondary School. The Senior Secondary School system has replaced the traditional 7-year (i.e. 5-year Secondary + 2-year Sixth Form) course. It has the following objectives.

i) To reinforce and build on knowledge, skills and attitudes acquired at the Junior Secondary School level ;

ii) To produce well-developed and productive individuals equipped with the qualities of responsible leadership capable of fitting into a scientific and technological world and to contribute to the socio-economic development of their own areas and the country as a whole ;

iii) To increase the relevance of the content of the curriculum to the culture and socio-economic problems of the country;

iv) To provide increased access to second-cycle education.

Senior Secondary School students study seven core subjects :

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a) English
b) Mathematics
c) Ghanaian Language
d) Sciences
e) Life Skills
f) Agriculture and Environmental Studies
g) Physical Education (which is not examined externally in the Senior Secondary School Certificate Examination).

In addition each student selects three subjects from a wide range of programme-options consisting of three subjects to be studied under one of five specialized programmes, namely

i. Agriculture Programme
ii. Technical Programme
iii. Business programme
iv. Vocational Programme
v. General (Arts & Science) Programme.

Up to 1990, secondary schools were offering predominantly Arts and Science subjects, but from 1991 the education reform programme has introduced into the curriculum vocationally oriented programmes, namely Technical, Vocational, Business and Agriculture. (See Table 4 below for intakes into vocationally oriented programmes as compared with general programmes for the period 1991-1993).

Table 4 : Comparative Intakes Into Vocationally Oriented And General Programmes In Senior Secondary Schools

| YEAR OF INTAKE | Number Admitted into Vocational Oriented programme (i.e. technical vocational business, Agric) | Number Admitted into gener. prog. (arts and science) | Total Intake | % Vocational Oriented Programmes Total Intake |
|---|---|---|---|---|
| 1991 | 29,689 | 19,588 | 49,277 | 60.25 |
| 1992 | 31,230 | 23,388 | 54,618 | 57.18 |
| 1993 | 34,199 | 24,338 | 58,537 | 58.42 |

*Tertiary Education*

In pursuing an overall national education reform programme, the Government of Ghana has since 1986 reviewed the tertiary level of education and has on the basis of the review, articulated objectives for tertiary education which have led to policy-based actions.

The following objectives and planned activties provide an insight into the trends for developing tertiary education.

a) Tertiary Education is to be efficiently managed with the added concern of making it cost-effective. In this respect, schemes to increase efficiency in the utilization of space, resources and personnel will be ensured.

b) National institutions are to be set up to co-ordinate and ensure uniformity particularly in the areas of admissions, accreditation and overall planning and evaluation.

c) At the institutional level, course structures are to be adjusted to better accommodate working persons, provide viable linkages between different types of programmes within the sub-sector, imbue students with a development orientation and methodology, and provide greater relevance in course content.

d) In view of the need to expand access to tertiary education to meet expansion at basic and secondary levels, and furthermore to diversify programmes at the tertiary level, the following paragraphs provide information on measures being taken :

  i) The implementation of the New Educational Reform Programme has increased the student population at the pre-tertiary education level. The tertiary educational institutions should therefore be in a position to admit an increasing number of qualified Senior Secondary School graduates. Hence the expansion and upgrading of the Polytechnics and the Regional Colleges of Aplied Arts, Science and Technology (RECAAST) into the tertiary sector.

  ii) The new educational reforms have definite implications for teacher preparation. Teachers form the key factor in the implementation process throughout the system, and the success of the reforms will depend largely on their competence and commitment. Consequently, reforms are also being introduced into teacher education to fit into the pre-university programmes adequately, in this direction, the teacher training programme has been restructured and the academic level for the intake into Teacher Training Colleges has been raised to '0' Level as the basic entry qualification.

  iii) There is no doubt that facilities and resources at the tertiary level will have to be enhanced in tandem with relevant schemes for extension of services and improvement in the quality of education. Initial steps have already been taken towards the improvement of library facilities, increased supply of educational materials and equipment and provision of instructional facilities to enhance instructional capacity. Plans are advanced for the provision of other facilities to cater for non-resident students.

  iv) Attention is being paid to the crucial area of staff development to provide an adequate supply of qualified personnel to carry out the reform programme.

  v) In spite of increased government inputs into the tertiary system, further support is required from non-governmental sources. Specific programmes for cost-sharing include the promotion of income-generating activities by institutions, the establishment of government bursaries and scholarships and the promotion of non-governmental sponsorship for students.

### *Special Education*

Special education for the handicapped is one of the major concerns of the Ministry of Education. This is because it is considered that handicapped people have the same needs as others to enable them to lead a fuller life. They also have potentials that can be tapped for the benefit of society. The education policy with regard to the handicapped is to train them to be able to fit into society and function normally and independently. As a result, people who are not severely handicapped are being encouraged to take advantage of the available opportunities for fitting into normal institutions, after acquiring basic education in special schools set up for them.

In pursuit of these goals, there is a Division of Special Education within the Ghana Education Service whose function is to develop, supervise and evaluate programmes in special schools. All children who are found to be capable of integrating into normal schools are encouraged and supported to do so. The Ghana Education Service recognizes the important role of parents and peripatetic teachers to work together towards an early identification and intervention in handicapped situations.

Accessibility to education for handicapped persons is available at all levels. At the basic level there are seventeen Special Schools - twelve for the deaf, three for the mentally handicapped and two for the blind. At the Senior Secondary level, a Secondary/Technical School and a Secondary/Vocational School have been set up for the deaf, whilst some selected secondary schools within the public system have been equipped to serve as integrated secondary schools for the blind. Facilities have also been set up at the University of Cape Coast to enable blind students pursue degree courses.

An efficient service for handicapped children requires for its operation competent staff. The College of Special Education, one of the diploma-awarding colleges that in November, 1992 formed the nucleus of the University College of Education at Winneba, ensures the fulfilment of this principle. Attempts are also being made to bring about the production of more trained teachers for the handicapped. This is being done through the introduction of elements of special education into the the curriculum of all teacher training colleges in the country.

### *Non-formal Education*

Non-formal Education in Ghana has been placed on the same footing as the formal system of education, following a recommendation of the 1977 Conference of African Ministers in Lagos for the "establishment of national councils or boards for non-formal education and structures within their Ministries of Education for the purpose of promoting non-formal education as an integral part of the national education system".

Under the Educational Reform Programme launched in 1987 by the Government, the Ministry of Education established the new Division of Non-Formal Education to work through Non-formal Education agencies to support a national Mass Literacy and Social Change Programme (MASSLIP).

Non-Formal Education covers organized and semi-organized educational activities operating outside the regular structure and routines of the formal education sub-sector and aimed at serving a great variety of learning needs of different sub-groups of the population, both young and old.

The Non-Formal Education Division of the Ministry of Education is charged with programming and co-ordinating the large social sector with a view to revitalizing teaching aids, facilitators, training, distance learning as well as community-based self-employment opportunities in order to make society at large functionally literate.

The main aim of the Division is to wipe out illiteracy by the year 2000 by embarking upon functional literacy programmes in the local languages as well as English.

## TECHNICAL AND VOCATIONAL EDUCATION SYSTEM

In Ghana, technical and vocational education and training is delivered at three levels: Basic Education, Second-Cycle and Tertiary education levels. At the Basic Education level, technical and vocational education really starts from the Junior Secondary School. Technical and vocational education at the second-cycle level is provided in the Secondary Technical Schools, Technical Institutes, Vocational Schools/Training Centres and other post-basic education training institutions as well as in some of the initial Teacher Training Colleges. Technical education at the tertiary level is delivered in the Universities, the Polytechnics and similar institutions.

### *Purpose*

In Ghana,the purpose of technical and vocational education at non-degree level is to provide young men and women with skills training (in addition to general education) in order to enable them to fulfil the country's technical manpower needs including self-employment up to the middle level in the field of industry, business and agriculture.

### *Objectives*

The objectives of technical and vocational education in Ghana include the following :

a ) To expose pupils at the Basic Education level to a range of practical activities in the vocational field in order to make them familiar with, and stimulate their interest in, vocational subjects and so give them equal opportunity to choose their future careers in either the technical or general field.

b) To equip students who have completed Basic Education with those occupational skills that will enable them to enter into gainful employment in industry and commerce.

c) To equip students with the relevant productive and entrepreneurial skills that will prepare them for self-employment.

d) To provide trained human resources in science, technology and commerce, matching supply of skilled labour with demand.

e) To provide personnel with the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development, while at the same time paying attention to environmental issues.

f) To give training and impart the necessary knowledge and skills to trained manpower leading to the provision of operatives, artisans, craftsmen, technicians and other middle-level technical personnel.

g) To enable the youth to have an intelligent understanding of the increasing complexity of science and technology through systematic exposure to modern technology.

h) To encourage the increased participation of women in education, training and employment in the technical field.

i) To provide a sound foundation for further education for those students who may wish to continue their education later in the context of lifelong education.

### *Legislation*

The delivery of technical and vocational education in Ghana has been facilitated by the enactment of various laws, including the following :

1. The Education Act, 1961 popularly known as the Compulsory Education Act, defined the public system of education under primary and middle school education, and secondary education, and made education at the primary and middle level free and compulsory.
2. The National Vocational Training Act, 1970, in recognizing the need to emphasize the more practical aspects of training, provided for the establishment of a National Vocational training Institute (NVTI) under the Ministry of Employment and Social Welfare to perform certain specified functions including the following :
   a) organizing apprenticeship, in-plant training and training programmes for industrial and clerical workers, and training the instructors and training officers required for the purpose ;
   b) developing training standards and trade testing.
3. The Ghana Teaching Service Decree, 1974 (NRCD 247), was promulgated for the establishment of the Ghana Teaching Service to ensure effective management,

supervision and inspection of pre-university educational institutions as well as the provision of teacher education, general education, special education (such as education of the handicapped), technical and business education in Ghana and the formulation of educational policies and programmes. The name Ghana Teaching Service was changed to Ghana Education Service in 1975 by the Ghana Teaching Service (Amendment Decree, 1975 (NRCD 357).

4. The Constitution of the Republic of Ghana, 1992 states, among other things, in Article 25 that "secondary education in its different forms, including technical and vocational education, shall be made generally available and accessible to all by every appropriate means, and in particular, by the progressive introduction of free education ; and in article 38 "That State shall, subject to the availability of resources, provide :
    a. equal and balanced access to secondary and other appropriate pre-university education, equal access to university or equivalent education, with emphasis on science and technology ;
    b. a free adult literacy programme, and a free vocational training rehabilitation and resettlement of disabled persons ; and
    c. life-long education".
5. The Polytechnic Law, 1992 (PNDCL 317), promulgated in 1992, empowered the six Polytechnics in Ghana which were already in existence, to, among other things, provide technical education at the tertiary level.

### *Administration*

At present, apart from the Ministry of Education and the Ministry of Employment and Social Welfare, which among other things, administer technical and vocational education and training, there are other government agencies and private organizations which are also engaged in technical and vocational education and training. (See Appendix 'E' for examples of these).

Specifically, the responsibility of organizing and providing technical and vocational education and training at the craft and technician levels in the Technical Institutes under the Ministry of Education is vested in the Technical and Vocational Education Division of the Ghana Education Service. The Technical and Vocational Education Division exercises a supervisory role over the technical and vocational institutions in the private sector.

The Division is also responsible for developing and reviewing curricula for technical and vocational education programmes, for conducting technical examinations, and for awarding the corresponding certificates.

The management of the technical and vocational institutions in the private sector is the responsibility of the individuals or the organizations of Churches that established them.

Technical education at the tertiary level, which is delivered at the Polytechnics and the University of Science and Technology, comes under the administration of the Tertiary Education Division of the Ministry of Education.

## NATIONAL CO-ORDINATING COMMITTEE FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

Over the years, there has been duplication in the organization and administration of technical and vocational education and training in Ghana due to the delivery of technical and vocational education and training by a proliferation of institutions and organizations. To remedy this situation, the Government decided to rationalize the entire system of technical and vocational education and training in the country.

### *Establishment of a Co-ordinating Body*

Accordingly, the National Co-ordinating Committee for Technical and Vocational Education and Training (NACVET) was established in 1990 to formulate policies and co-ordinate all aspects of technical and vocational education and training, and to advise on a scheme and structure of technical and vocational education and training that would meet the requirements of the Ghanaian economy and also make the youth employable in both the formal and informal sectors. Another crucial function of NACVET is the rationalization of the evaluation, testing, assessment and accreditation procedures of the system of technical and vocational education.

NACVET operates through 8 technical sub-committees dealing with specific subjects as follows :

a) Technician Education and Training Programmes
b) Craft Education and Training Programmes
c) Technical Teacher Education and Instructor Training Programmes
d) Examinations and Accreditation
e) Manpower Planning and Collaboration with Industry and Commerce
f) Vocational/Career Guidance and Counselling
g) International Cooperation
h) Tools, Equipment and materials Procurement and Supplies

Some of the major achievements of NACVET since its inception include the following :

i) Policy on technical and vocational education has been developed;
ii) National Occupational Standards (NOS) have for the first time been established for some trade areas in Ghana by a corps of professionals. In this connection, syllabuses in the form of Modules of Employable Skills (MES) based on the NOS are being developed for 40 relevant trade areas under the auspices of the Ministry of

Employment and Social Welfare and the UNDP/ILO Umbrella Programme for Sustained Employment Generation. The Umbrella Programme, which is made up of three components, aims at promoting and sustaining employment policies and programmes through :

a) enhanced Government capacity to plan and monitor employment policies ;

b) more effective skill development and utilization in support of employment promotion ; and

c) the development of micro and small enterprises programmes.

iii) Under the auspices of this Umbrella programme NACVET has embarked on re-orienting technical and vocational education towards self-employment. In furtherance of this, enterpreneurial education is being integrated into the curriculum for the technical and vocational institutions.

Arrangements are in progress towards establishing, upon the appropriate legislation, a National Council for Technical and Vocational Education and Training (NACVET), to replace the existing National Co-ordinating Committee for Technical and Vocational Education and Training.

## INSTITUTIONS AND PROGRAMMES

There are 160 technical and vocational institutions in Ghana run by different government agencies and 250 registered private institutions. There are also 700 unregistered private vocational schools/training centres. There are 6 Polytechnics and the University of Science and Technology which provide technical education at the Higher National diploma and degree levels respectively.

Table 5 below gives the breakdown of government agencies/institutions engaged in technical and vocational education and training :

Table 5 : GOVERNMENT AGENCIES AND NUMBER OF INSTITUTIONS ENGAGED IN TVE

| GOVERNMENT AGENCY | N°. OF INSTITUTIONS |
|---|---|
| National Vocational Training Institute (NVTI) | 21 |
| Integrated Community Centres for Employable Skills (ICCES) | 70 |
| Intermediate Technology Transfer Unit (ITTU) | 6 |
| Ghana Education Service (GES) | 21 |
| Other Government Institutions | 42 |
| Total | 160 |

### *National Vocational Training Institute*

The National Vocational Training Institute (NVTI) is a technical and vocational training agency under the Ministry of Employment and Social Welfare. The courses offered by the NVTI are mostly practically oriented. In general, they consist of 75 percent of practical training and 25 percent theoretical studies. The duration of the courses varies from 2 to 4 years, with the 4-year courses, run on block-release basis. Also run by the NVTI are é to 3-year apprenticeship courses, which are known as centre-based courses simply because both the educational and practical training are done at the centre. These courses lead to the Tradesman Grade II and Grade I certificates. Entry to NVTI courses is open to holders of the Middle School Leaving Certificate (MSLC), Junior Secondary School Certificate (JSSC), Basic Education Certificate (BEC) or its equivalent.

*Integrated Community Centres For Employable Skills*

The Integrated Community Centres for Employable Skills (ICCES), which are under the Ministry of Employment and Social Welfare, normally run short courses which are predominantly practically oriented. These courses are geared towards practical skills acquisition through community development projects. The duration of the courses varies from a minimum of about two weeks (for vulcanizers) up to a maximum of two years. Applicants could be either literate or illiterate but must be fit and trainable.

*Intermediate Technology Unit*

Apart from giving on-the-job training to artisans and small-scale industrialists in the private sector, the Intermediate Technology Transfer Unit (ITTU) under the auspices of the Ghana Regional Appropriate Technology Industrial Service (GRATIS), makes available to its clients the following services free of charge :

a ) technical information

b) advice on technical, economic and commercial matters.

The ITTU is a group of production workshops demonstrating new products and improved manufacturing methods. It shows what is possible and leads the way by providing a practical example for others to follow. It liaises with educational as well as research institutions and also offers rural and women's industrial extension services to help introduce non-engineering income-generating activities such as food-processing, textiles and pottery.

*Courses run By Private Technical/Vocational Schools/ Institutes*

Private technical and vocational institutions run a variety of courses lasting between 3 and 4 years. Their students take either the City and Guilds of London Institute or the Ghana Education Service craft certificate examination or the national Vocational Training Institute (NVTI) Craftsman or Tradesman Grade certificate examination. The entry requirements include the possession of any one of the following : the Middle-School Leaving Certificate (MSLC), the Basic Education Certificate (BEC) or its equivalent.

## COURSES RUN BY TECHNICAL INSTITUTES UNDER THE ADMINISTRATION OF THE TECHNICAL AND VOCATIONAL EDUCATION DIVISION OF THE GHANA EDUCATION SERVICE

The programmes of Technical Institutes, embracing technological and practical training as well as general education, are organized along the following lines (See Appendix 'C' for courses run in the Technical Institutes):

***Full Time Programme***

*i) Pre-Employment Courses*

- The programmes under this system are undertaken by holders of Middle School Leaving Certificate (MSLC)/Junior Secondary School Certificate (JSSC/Basic Education Certificate (BEC) or its equivalent for a minimum of three years.
- Course offered are in the ratio of 60 percent practical training and 40 percent theory.

*ii) Block release Course*

Under this system, workers and apprentices who are holders of MSLC/SSC/BEC or its equivalent are released by employers to attend classes for short periods of fifteen to seventeen (15-17) weeks per year for four years.

*iii) Short Courses*

Special short courses in specific fields are organized according to local and national manpower needs or at the request of employers in the fields of industry, commerce, agriculture, etc.

***Part-Time Programme***

*i) Afternoon Classes*

Classes are organized in the afternoons for workers and other interested members of the public who are holders of MSLC/SSC/BEC or its equivalent and would like to further their education in technical and vocational subjects beyond the MSLC/JSSC/BEC level.

*ii) Evening Classes*

Classes are organized in the evenings for workers and other interested members of the public who are holders of the MSLC/JSSC/BEC or its equivalent and would like to further their education in technical and vocational subjects beyond the MSLC/JSSC/BEC level.

- The duration of a part-time course is normally one year longer than that of a full-time course.

- Both full-time and part-time courses lead to the award of Craft Certificates of the Ghana Education Services (GES) the City and Guild of London Institute (CGLI).

*iii) Advanced Craft and Technician Course*

Advanced Craft and Technician Courses are offered in Technical Institutes which have the necessary facilities.

### *Polytechnics*

Following the upgrading of the Polytechnics to tertiary institutions under the educational reform programme, they have since 1993 started running Higher National Diploma (HND) programmes on full-time basis in place of the lower technician and advanced craft courses, which are now being run in the afternoon and evening as part-time classes. (See Appendix 'D' and 'E' for the programmes and courses of the Polytechnics).

### *Universities*

Although all the four Universities in the country offer some programmes in the field of science and technology, it is only one of them, the University of Science and Technology, Kumasi that has been set up specifically to provide programmes in engineering and other technological studies as well as in art education. The University of Cape Coast has recently begun an M. Phil degree course in Vocational Education and Training.

### *University College of Winneba*

This University College, which was established by the amalgamation of 7 Diploma-Awarding Colleges, is specifically assigned the responsibility of producing graduate teachers for second-cycle institutions in a variety of disciplines including art, Business Education, Home Science, Music, Physical Education, Mathematics and Science.

### *Articulation*

Below is a brief description of the articulation between technical and vocational education and other elements of the educational system, which can best be understood by referring to the educational structure in Appendix 'A'.

Students who complete Basic Education may enter a Technical Institute or a Senior Secondary School, where they take a 3-year programme. On completion, the Senior Secondary School graduates may proceed to the University for a degree course or to a Polytechnic for the HND programme or to any of the other tertiary institutions for preparation for an occupation of their choice. On the other hand, on completion of their craft course, the Technical Institute graduates may enter into employment for a year, after which they may go back to the Institute to do the advanced craft course. After the advanced craft course, the students may undertake a technician course either on full-time basis at a Technical Institute or on part-time basis at a Polytechnic. Students who complete the technician course may proceed to a Polytechnic for the HND programme. The graduates from the Polytechnic have the opportunity to enter any of the Universities to undertake a degree course.

It is important to note that the curriculum for technical and vocational education at the craft level as well as the advanced craft and technician levels includes, among others, general subjects which give the students a sound background in general education so that those who have the ability may proceed to the highest possible level of their educational and occupational careers. With the integration of the general subjects into the technical and vocational education curriculum, firm linkages have been established throughout the educational system. For example, in the case of technical and vocational students, provision has been made for the admission of :

i. artisans to craft courses

ii. craftsmen to technician courses, and

iii. technicians to university or professional courses.

## FINANCING OF TVE

The Government is the main provider of funds for executing technical and vocational education programmes in the public sector, covering the provision of buildings, equipment, handtools, materials for training and staff emoluments.

Friendly foreign countries constitute another source of funding for technical and vocational education. The assistance given by the foreign countries may be in the form of loans or grants. For example, the Canadian government, through the Canadian International Development Agency (CIDA), has jointly with the Government of Ghana established two technical institutions, namely Accra Technical Training Centre and Kumasi Technical Institute. CIDA has from time to time been providing funds for supporting the two institutions as well as for rehabilitating Tamale Polytechnic.

The German government has also under a joint project with the government of Ghana helped to establish Takoradi Technical Institute and continues to give support to this Institute in the form of equipment and materials for training. Through the cooperation of the Governments of Ghana and France, an Industrial Maintenance Department, which is the first of its kind in Ghana, has been established at Accra Technical Training Centre this year, 1994, to train industrial maintenance technicians on full-time as well as on part-time basis.

Short courses also in Industrial Maintenance will be run for technical personnel, including technicians and engineers already employed in industry.

The following describes briefly the procedure for allocating funds for technical and vocational education programmes under the annual budget :

a) At the beginning of the last quarter of every year, the technical institutions in the public system submit their estimates (both recurrent and capital) for the ensuing year to the headquarters of the Ghana Education Service, where they are collated and sent to the Ministry of Finance and Economic Planning. The Ministry of finance and Economic Planning further collates the estimates of all Ministries and departments in the public service and sumbits them to Parliament for approval.

b) Quarterly grants from the approved budget are allocated to the technical institutions from the regional offices of the Ghana Education Service. Besides being audited by external auditors, the accounts of the technical institutions are scrutinized by both the Principals of the institutions and internal auditors of the Ghana Education Service to ensure that the moneys allocated are properly and efficiently utilized in accordance with the Financial And Accounting Instructions For Secondary Schools, Training Colleges And Educational Units Issued By the Ghana Education Service.

In the case of part-time students in public technical institutions and all students in private technical and vocational institutions, the institutions charge them fees to cover costs of tuition, materials for training, and other expenses.

Funds allocated to some institutions and levels of education in Ghana over the period 1991-1993 are shown in Table 6 at Appendix 'F'. As can be seen from the Table, a substantial amount of the recurrent budget goes into personal emoluments. Thus the money left for the procurement of equipment, handtools and materials for training falls far short of what is needed for effective delivery of technical and vocational education and training.

It seems that in Ghana the financing of technical and vocational education has virtually been left to Government alone, which should not be the case. It is considered appropriate that this should be the concern of all who utilize the products of technical and vocational education, especially industry and business. Accordingly, a recommendation has been made to Government by the National co-ordinating Committee for Technical and Vocational Education and training (NACVET) that the industrial and commercial organizations, should be asked by law to make a financial contribution for the development and promotion of technical and vocational education and training, so as to enable it to meet the present and future technological needs of industry and commerce.

## LINKS WITH INDUSTRIES

Close ties with industry and business are the distinguishing characteristics of technical and vocational education. These ties should affect all aspects of the work of technical and vocational institutions, including the courses, syllabuses, staffing and equipment. In Ghana the importance of these links is recognized by the Ghana Education Service. Consequently, on the recommendation of the Ghana Education Service, the technical and vocational institutions have adequate representation of industrial interests on their governing bodies and some of them have set up course advisory committees with representatives from industry and business, among others. To ensure that the content of courses run in the technical and vocational institutions are relevant to the needs of industry and business and so can meet the changing demands of the labour market, industry and business are involved in the development of courses and related activities at the institutions in the public sector. Accordingly, the course advisory committees advise on the content of courses, relating it closely to the needs of industry and business.

Some heads of technical and vocational institutions foster good relationships by encouraging the local firms to use institutional premises for exhibitions, talks, etc. during open days, representatives of industry and business are encouraged to come into the institutions to see their facilities and interact with staff and students. Reciprocally, visits to industries by staff and students of the institutions are arranged from time to time. Specialists are invited from industry to give talks to student in the technical and vocational institutions.

In the area of continuing education, the institutions make provision for workers in industry and business to attend classes on part-time or bloc-release basis to update and upgrade themselves and hence improve upon their qualifications.

The value of attachment of both staff and students to industrial business establishments is recognized by the technical institutions, and so they try, with varying degrees of success, to attach their staff and students to such establishments. Industrial Liaison Officers have been appointed in the technical institutions to see to the arrangement of these attachments, among other things.

Arrangements are in progress for the technical and vocational institutions to use simplified form of tracer studies and other items of information from the labour market, under the direction of their Industrial Liaison Officers, to assess the relevance, effectiveness and efficiency of their courses. By using Labour Market Information (LMI), they will be able to appraise and review their programmes. The LMI will also enable the technical and vocational institutions to know which courses are in demand and what to include in their syllabuses.

The syllabuses for the various courses run in the technical institutions under the administration of the Ghana Education Service are reviewed every three to five years to bring them in line with educational requirements and with modern developments in the trade areas in industry and business and the employment market.

In this connection, institutions are encouraged and supported to offer bridging courses each year for capable and desirous adults who wish to follow trades courses/programmes but do not have the requisite entry requirements.

It has been found necessary to encourage, motivate and assist pupils to stay in school to complete at least their Basic Education so as to minimize the number of adults who may need Adult Basic Education in the future.

Every effort is being made to encourage and support the Technical Institutes, Polytechnics, Universities and other institutions of higher learning which are engaged in relevant continuing educational activities/programmes not only to strengthen their activities but also to diversify them.

## CAREER GUIDANCE AND COUNSELLING

Guidance and Counselling constitutes an important aspect of education, and so it is necessary to enhance its development to enable it play its vital role in any eduational system. Guidance and Counselling helps individual students to assess and appreciate their potential and tendency towards growth, career development and self-actualization.

To make guidance and Counselling services available in all educational institutions in Ghana, the Ghana Education Service has now included guidance and Counselling in the teacher education syllabuses, so that all teachers coming from the Teacher Training Colleges may be able to give guidance and counselling to their pupils and students. Guidance and Counselling has also been included in the curriculum of the Faculty of Education of the University of Cape Coast and that of the University College of Education, Winneba.

The Ghana Education Service has established Guidance and Counselling units in all the regional and district education offices to provide and co-ordinate Guidance and Counselling services in the educational institutions.

To help detect learning defects which may lead to the phenomenon of early drop-outs, the Ghana Education Service plans to develop diagnostic tests appropriately normed for use in Ghana at various levels of education. Such instruments in the hands of competent Guidance Counsellors will facilitate early detection of special needs of their pupils and students for appropriate intervention strategies to be planned for them.

In the light of this, Special Education has been made a subject in the syllabus of Teacher Training Colleges in the country. This is to enable the teacher trainees to acquire the needed skills to detect and handle handicapped cases properly.

Some second-cycle institutions under the Ghana Education Service have Guidance Counsellors and Co-ordinators? Steps will be taken to ensure that the rest are provided with qualified guidance personnel. Regular in-service training courses are organized for all the guidance personnel in the regional and district offices and those in the institutions.

In the Technical Institutes there are Industrial Liaison Officers working closely with the guidance personnel to arrange industrial visits for the students, as well as industrial attachments for both teachers and students.

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The need has been felt to intensify educational and vocational guidance for schools. In this connection, steps are being taken to make both boys and girls aware, right from Primary Schools, of the equal opportunities for technical and vocational education programmes for both sexes.

### *Collaboration with the Ministry of Employment and Social Welfare*

The Labour Department of the Ministry of Employment and Social Welfare has a unit known as National Employment Service which, among other things, gives vocational guidance and employment counselling. The Ghana Education Service provides guidance services in the schools in collaboration with this unit.

Both the Labour Department and the Ghana Education Service provide facilities for vocational guidance to young persons in the Junior Secondary Schools. They help them to make the right choice of programme, to select the elective subjects to study in the Senior Secondary School, Technical Institute or other second-cycle institution and to acquire the right skills for employment. The activities undertaken by these two organizations to assist the Junior Secondary School pupils include :

i. dissemination of information regarding occupations by means of :
    - talks
    - films on people at work
    - visits to various places of work
    - group discussions

ii. individual vocational guidance interviews ;

iii. job placement ;

iv. review of progress of young workers ;

v. creating awareness in the students of the opportunities for further education in adult life.

Under an arrangement between the Ministry of Education and the Ministry of Employment and Social Welfare, the Ghana Education Service and the Labour Department have each a set of specific responsibilities in the area of career guidance and counselling. The Ghana Education Service's responsibilities include :

- educational guidance in respect of school courses ;
- further education, scholarships, etc. ;
- preliminary vocational guidance including dissemination of occupational information, discussions and visits ;
- provision of information about abilities and attainments of prospective school-leavers; and
- training of careers counsellors.

The responsibilities of the Labour Department include :

- provision of occupational and employment information ;
- vocational guidance, e.g. giving talks on careers to students ;
- placement in employment ;
- review of progress of the young persons in employment.

## THE INFORMAL SECTOR

In Ghana, as in other developing countries, employment in the informal sector outstrips that in the modern sector. Training in this sector is important and needs to be well-thought out and streamlined.

Traditional apprenticeship is the main method of training workers in this sector. In addition to their attachment to a craftsman's workshop, the apprentices undertake part-time courses in technical and vocational institutions to supplement their practical training.

### *Training for the Informal Sector*

The Government has realized that it is the informal sector that can really contribute to the growth of the economy,and so it gives this sector the needed support. Accordingly, with the assistance of the World Bank, the Government has initiated training programmes in some selected trade areas for apprentices as well as master craftsmen in the informal sector to help them improve upon their performances. For example, the Ministry of Education, has embarked on a Transport Rehabilitation Project for master crafstmen and apprentices in the informal sector in various trades in the motor vehicle field.

a) Under this Project, a series of short intensive courses are being run by some selected public technical institutions for selected master craftsmen and apprentices who are members of the Ghana National Association of Garages (GNAG).

b) A competency-based teaching/learning approach is being used throughout the course. This method makes it possible to teach both literate and illiterate persons in the same workshop as well as classroom. Indeed, a few illiterates have been atending the course.

c) The duration of the course for the master craftsmen is 6 weeks, while that for the apprentices is 12 weeks. At the end of their training, each apprentice is given a set of tools to enable him start work on his or her own.

In addition to the above assistance from the World Bank, another support for a project dubbed "Vocational Skills And Informal Sector Project" is being vigorously pursued by the Ministry of Education for the benefit of master craftsmen and apprentices in the following five priority self-employable trade areas :

a) Refrigeration and Air-conditioning

b) Electrical Installation

c) Tailoring and Dressmaking

d) Blockwork and Concreting

e) Carpentry and Joinery

In the case of this Project, the master craftsmen will be given a 2-week intensive course in modern technology in their respective trade areas. These courses for the craftsmen are designed to help them improve upon their performance as well as to be better trainers.

A 12-week training programme wil be run for apprentices whose masters will benefit from the 2-week intensive training to instil in them good work habits and impart to them technologies which they would not otherwise acquire. The courses will be run by 40 selected private and public technical institutions in various parts of the country.

a) Basic elements of entrepreneurship are included in the programmes for both the apprentices and the master craftsmen. At the end of their training, each apprentice will be supplied with a set of tools to enable him or her start work on his or her own.

b) A competency-based teaching/learning method will be used in the delivery of technical and vocational education and training to both master craftsmen and apprentices who may be selected for courses/programmes under this Project.

c) Selection of the master craftsmen and apprentices will be done through their respective trade associations.

The Technical and Vocational Education Division of the Ghana Education Service intends to revive the use of well-equipped "mobile workshop" vans and other resources of the technical institutions to provide further training to both apprentices and master craftsmen already engaged in the informal sector. This system of training by the use of "mobile workshop" vans was operated by one of the Technical Institutes in Ghana for a few years, but it is now proposed to extend it to other technical institutions in the country.

## EXAMINATIONS AND ACCREDITATION

Examinations and trade-testing for technical and vocational education and training in Ghana have been and are still being conducted by various bodies, agencies and institutions. This has resulted in the award of different certificates of varying standards; hence the problem of establishing equivalences for the various and numerous certificates issued by the various bodies all purported to be indicating achievement of the levels of education and training.

## ESTABLISHING OF EXAMINING BOARDS

To ensure uniformity and common standards in all aspects of examinations connected with technical and vocational education and training, the Government of Ghana is taking steps to establish two examining bodies, namely :

a) National Board for Professional and Technician Examinations (NAPTEX) - This Board shall be responsible for the formulation and administration of schemes of examinations, assessment, evaluation, certification and standards for skills competencies as well as syllabuses competencies for all non-university institutions (such as Polytechnics and similar institutions) at tertiary level, the professional bodies and private institutions with accreditation by the National Accreditation Board.

b) National Technical and Vocational Examinations Board (NATVEB) - This Board, which shall operate under the aegis of NACVET, shall harmonize the assessment and standardization procedures of the technical and vocational education system hitherto provided by various organizations in the country, administer schemes of examinations, assessment, evaluation, accreditation and certification for programmes and skills competencies below non-university tertiary level of training.

The nucleus of the Board shall be made up of the Trade Testing Department of the National Vocational Training Institute (NVTI), the Technical Examinations Unit of the Ghana Education Service (GES), the Government Secretarial Schools of the Office of the head of Civil Service (OHCS) and other examining and trade testing bodies.

## FORECAST OF THE FUTURE SITUATION

There are several shortcomings and deficiencies in the existing technical and vocational education system in Ghana. However, it is hoped that with the implementation of the steps currently being taken by Government, the system will be developed to such an extent that it will provide quality manpower for industry and commerce and generally make for economic progress.

There will be qualitative improvement in the technical manpower available for use by various sectors of the economy. Since the technical institutions will run courses and programmes geared closely to the manpower needs of industry and commerce, there is likely to be a regular and adequate supply of the needed technical manpower at the various levels.

One of the major causes of unemployment in Ghana is the existence of a large number of unemployed young men and women who have had the benefit of only general education up to the basic level, and so are fit for only white-collar jobs, which in most cases are non-existent. However, when the technical and vocational education system is developed, a good number of the Ghanaian youth can opt for technical and vocational education so as to be equipped with job-oriented skills. Such a situation will help to reduce the level of unemployment among the youth, more so when many of them will be capable of being self-employed.

The products of an improved technical and vocational education system will help to strengthen and sustain Ghana's growing national economy by helping industry and commerce to achieve their main objectives of producing goods and providing services that the people need. There will be improvement in the living standards of the people in the areas of nutrition, health, housing, education and welfare, thus bringing about an acceptable quality of life for everyone. When the technical vocational education system in Ghana is improved, skills training can be given in traditional as well as non-traditional areas. Therefore, more goods will be produced for home consumption as well as for export in both the traditional and non-traditional area.

## EXISTING PROBLEMS

There are vast opportunities for technical and vocational education and training in Ghana in terms of the large number of public and private technical institutions. Sadly, however, the impact of these on national development has not been significant due to a number of constraints, including the following :

a) The people of Ghana in general put a low value on technical and vocational education and training. Their attitude to this type of education is that it is inferior to academic education. As a result of this attitude, it has been the less bright pupils from first-cycle educational institutions who have often opted for technical and vocational education courses.

b) The education and vocational guidance given to pupils/students in school, especially at the basic education level, is inadequate.

c) Available funds for carrying out programmes of technical and vocational education and training are inadequate. Most of the cost of administration and training in the public segment of the technical and vocational education system is borne by Government and, to some extent, by donor agencies. There is little or no support from the private sector, financial procedures are cumbersome and the budgetary system is unreliable, thus adversely affecting the funding of technical and vocational education in the public sector.

d) The existing infrastructure for technical and vocational education in terms of buildings, equipment and tools is deteriorating and inadequate. Most of the technical and vocational institutions do not have well-equipped workshops, laboratories, classrooms and libraries. A lot of the items of equipment in the technical institutions in both the public and private sectors and the two Technical Teacher training Colleges, which were installed over 30 years ago, have either broken down, worn out or become obsolete. The technical and vocational institutions do not have adequate training materials and books.

e) There is an acute shortage of qualified, competent and experienced teachers in some technical institutions and in most Junior Secondary Schools, Senior Secondary Technical Schools and the Teacher Training Colleges offering technical subjects.

f) In spite of the massive contribution to education by the technical and vocational institutions in the private sector, they have serious defects in training delivery and certification. There is a definite need to upgrade their performance.

g) The linkage between technical and vocational institutions on the one hand and the industry and commerce on the other, is not strong enough. As a result, the skills training in the institutions is not closely related to the requirements of industry and commerce.

h) There is a lack of opportunities for practical training in industry and commerce, because the well-established firms are reluctant to take students from the technical institutions on the grounds that :

  i. the firms are producing below capacity ;
  ii. the students are not fully trained and so retard the progress of work in the firms when they come on attachment ;
  iii. the students are not covered by insurance.

i) In Ghana, the participation of females in technical and vocational education is relatively low.

j) There is inadequate Labour Market Information (LMI) to guide the educational authorities in determining the types of courses to run in the technical and vocational institutions.

## NATIONAL POLICIES AND INNOVATIVE MEASURES

The Government has put in place a number of innovative measures and strategies aimed at promoting the development of technical and vocational education.

### *Educational Reforms*

a) In September, 1987, Ghana began to implement country-wide educational reforms which were aimed at giving a practical orientation to the educational system. In the past the system had emphasized the study of academic subjects, resulting in turning out from the educational institutions graduates who have not been equipped with any occupational skills. This made it difficult, and in many cases impossible for them to get employment. It was mainly to reverse this trend that the educational reforms were introduced.

b) To make education functional and development-oriented, the ongoing reforms aim not only at providing Ghanaian children with academic knowledge but also at equipping them with practical, vocational and technical skills which will enable them to function effectively in society on completion of their courses.

c) Another major change created by the reforms has been the restructuring of pre-university education from the 6 + 4 + 5 + 2 system to the 6 + 3 + 3 system, thus reducing its length from 17 to 12 years. In addition, the reforms brought about increased access to education.

d) The need to reinforce the process of the reform has led to the decision to expand and strengthen the technical and vocational education and training system and make it more relevant to present day needs.

e) A new Technical Institute has been opened at Wa, the capital of the Upper West Region of Ghana, to give the youth in that Region the opportunity to opt for technical and vocational education as an alternative to general education. Plans are also under way to open, in the near future, a new Technical Institute with emphasis on agriculture and fishing, at Amankwakrom in the Eastern Region.

f) Some of the old Technical Institutions have been refurbished to enhance their effectiveness in delivering technical and vocational education. Additionally, new items of equipment have been provided to existing Technical Institutes as well as Senior Secondary Schools.

g) In furtherance of the education reforms, as many as 100 new Secondary Technical Schools have been established in various parts of the country.

h) The reforms at the tertiary level of technical education are being carried out through :

   i. the provision of staff training and development opportunities to match the upgrading of courses and curricula ;
   ii. upgrading of equipment, essential teaching materials and facilities in order to set and maintain higher national standards ;
   iii. promotion of the semester course unit system to facilitate the movement of students between institutions and also to enable students to take time off their studies to work and resume studies later ;
   iv. passing of a law for the establishment of a National Board for Professional and Technician Examinations to be responsible for the formulation and administration of schemes of examinations, evaluation, assessment and certification for all non-university institutions at the tertiary level ;
   v. establishing an efficient system of financial and resource management.

### *Improving The Quality of Technical Teachers*

a) As part of the strategies to implement the educational reforms, steps have been taken to improve the quality of technical teachers.

b) Facilities have been provided at 10 of the existing initial Teacher Training Colleges to train technical teachers so as to increase the annual output of such teachers for the Junior Secondary Schools.

c) To increase the number of technical teachers for the Technical Institutes, the Senior Secondary Technical Schools, the Technical Teacher Training Colleges and the Polytechnics, a sandwich course has been introduced at the Advanced Technical Teachers' College at Kumasi alongside the existing full-time programme.

d) As a further means of improving the quality and performance of technical teachers, a few overseas training awards offered by Britain, Germany and Canada, among others, are made from time to time to technical teachers to enable them update and upgrade their knowledge and skills in their areas of specialisations as well as in pedagogy. For the same purpose, a lot more technical teachers undertake further courses with pay in local institutions to improve upon their qualifications. In-service training seminars and workshops on various relevant subject areas are also organized periodically by the Ghana Education Service for practising technical teachers to upgrade their knowledge or learn new techniques and latest developments in their areas of specialization as well as in educational technology.

### *Enhancing the Effectiveness of Heads of Technical Institutes*

Recognising that the Principal of a Technical Institute is generally the chief academic and administrative officer and has responsibility for the smooth running of the Institute, the Ghana Education Service (GES) has been organizing seminars and workshops from time to time for Principals of the Technical Institutes that are under the administration of the Ghana Education Service. The purpose is to enable them to carry out their numerous managerial, administrative and other duties effectively and efficiently. These seminars and workshops help the Principals not only to gain an understanding of human relations to enable them get on with their staff, students and the general public, but also to acquire an insight into up-to-date management techniques. Additionally, they attempt to introduce the Principals to all aspects of the operation of a Technical Institute.

Owing to financial and other constraints, however, the GES is not able to organise the seminars and workshops on a regular and recurrent basis for the Principals. It is envisaged that when conditions become favourable, more systematic and regular training programmes will be run for them. Besides the seminars and workshops which the GES organises for the Principals, the Executive of the Association of Principals of Technical Institutions (APTI) organises conferences regularly for the Principals. At such conferences the Principals exchange ideas on matters of common interest and discuss their problems and find fitting solutions to them.

### *Ghana Education Staff Development Institute*

To provide the opportunity for all the different categories of educational personnel to upgrade, update and generally improve their knowledge and professional competence, the Ghana Education Service has established the Ghana Education Staff Development Institute at Ajumako, where in-service training courses are run on a regular and continuing basis for both teaching and non-teaching personnel, including administrators, heads of institutions, inspectors and guidance and counselling personnel.

### *Production Units*

Upon the encouragement of the Technical and Vocational Education Division of the Ghana Education Service, some of the Technical Institutes have established Production Units, where their students are engaged in producing goods and providing services in real-life situations for customers on semi-commercial basis. This gives the students the opportunity to acquire practical experience at the shop-floor level and also enable the Technical Institutes to generate some income to supplement Government grants for their operations. Because of its usefulness, the Production Unit system is being extended to all the other technical institutions in the country.

### *Tools-Acquisition Scheme*

To motivate the students to enter into self-employment at the end of their course, it is intended to introduce a "tool-acquisition scheme" under the Production Unit system. By means of this scheme, the students will use the incomes realized from the income-generating activities they undertake to acquire for themselves, over a specified period, some basic tools to help them "take off" smoothly in the world of work, especially in the area of sell-employment individually or co-operatively on a micro/small-scale basis.

## PARTICIPATION OF WOMEN IN TECHNICAL AND VOCATIONAL EDUCATION

There is no gender distinction in the provision of education by the Ministry of education in Ghana. In 1961 the Accelerated Educational Development Plan established equal opportunities for men and women in education. Therefore, officially there is no discrimination against women in the matter of technical and vocational education.

The Ministry of Education through the Ghana Education Service, has in the on-going educational reforms revised the curriculum in such a way that provision is made for both boys and girls to study technical and vocational subjects at the various levels, beginning from the Junior Secondary School stage.

Other Ministries as well as some statutory organizations also provide technical and vocational education and training for their staff, including women, in their respective areas of operation.

In the Senior Secondary Technical Schools, options are available for the study of technical and vocational subjects by boys and girls alike. Under the educational reform programme, the number of Senior Secondary Technical Schools has been increased from 20 to 120. This means greater access to technical and vocational education for both boys and girls.

In spite of this favourable climate, most Ghanaian parents have been reluctant to expose their daughters to the "hard" and "harzadous" field of technical and vocational education and training. Consequently, the majority of Ghanaian females who have the benefit of education opt for general education rather than for technical and vocational education. Their employment naturally follows a similar pattern.

The problem has arisen out of a number of socio-cultural factors, some of which are :

*a) Societal Norms*

These tend to make women feel reluctant to take certain technical and vocational courses which, because of long-standing practice, are regarded as the preserve of men.

*b) Prejudices*

Though there are available in the technical institutions a wide variety of technical and vocational courses which students of both sexes are free to undertake, girls normally opt for those courses which are traditionally regarded as being in the female domain, this being due to the commonly held view that certain technical and vocational programmes are by their very nature meant for men.

*c) Feeling of Physical Incapacity*

Because women have generally been known to do light jobs, they tend to shy away from those technical jobs which are strenuous and therefore require great physical exertion (e.g. Masonry, Plumbing, Carpentry and Joinery) or those taking place in unattractive environment (e.g. Motor Vehicle Mechanics, Auto-Body repairs and Welding).

*d) Too Few Female Role Models*

There are generally too few role models of women in the technical and vocational field to encourage female students to prepare to enter similar technical professions.

e) *Ignorance*

The majority of female students are not aware of the training opportunities in the technical and vocational field which they can take advantage of. Most female students as well as their parents and guardians are ignorant of the value of technical and vocational education. They are therefore not sufficiently motivated to cultivate an interest in studying technical and vocational subjects like their male counterparts.

f) *Lack of Encouragement*

Female students do not get enough encouragement from their parents or guardians, teachers and peers to opt for technical and vocational education programmes.

***Possible Solutions***

The following are some of the solutions being applied to solve the problem of low participation of women in technical vocational education in Ghana :

a) As has been mentioned above, the official policy of the Ministry of Education has been strengthened by the diversification of the curriculum to lay emphasis on technical and vocational subjects being studied at all levels of education.

b) In the initial Teacher Training Colleges the policy is that all students must study at least one technical or one vocational subject. In time, therefore, there will be more female teachers capable of handling technical and vocational subjects in our schools and who will act as role models for the female students.

c) *Science, Technology and Mathematics Education (STME) Clinics*

In August, 1987, a programme aimed at stimulating the interest of female students in Science, Technology and mathematics Education (STME) was started. The main objectives of the STME Clinics are :

i. to give selected female students the opportunity to meet and interact with established and practising Ghanaian and foreign professional women in STM ;

ii. to attempt to change the attitudes of female students in matters of gender stereotyping in STME ;

iii. to provide the participants with educational opportunities in STM that are well beyond those normally available in their courses or laboratory work in their schools.

d) There are now female co-ordinators in charge of programmes for Women in Development in some of the Technical Institutes in the public system.

e) By means of workshops, functional literacy classes and other activities held under the direction of women organizations, illiterate women are helped to function effectively in society by being trained in marketable skills including :

i. reviving of old skills ;

ii. teaching of new skills, and technology to help them reduce the drudgery and physical labour entailed in their economic ventures and expand and maximize their productive activities.

f) Efforts have been made in the educational reform programme to design non-gender curricula which cater for a variety of potentials and, therefore, sustain the interest of girls as well as boys. For instance, at the Junior Secondary School level, both boys and girls are required to study all subjects including pre-vocational and pre-technical subjects. To implement this policy effectively, the Ghana Education Service is making every effort to supply the necessary inputs.

g) It is intended to organise extensive education of the public, parents and guardians, girls and staff of educational institutions in Ghana about the opportunities for technical and vocational education, training and employment for women to encourage female students to study technical and vocational subjects and later take up employment in that field.

h) As regards apprenticeships and industrial attachments for the purpose of practical training, there is no discrimination whatsoever against female students on technical and vocational education programmes.

## INTERNATIONAL COOPERATION

Friendly foreign countries and international organizations which have been giving support for improving the quality of technical and vocational education in Ghana and for expanding this kind of education include the following :

a) Canada, Germany, United Kingdom, Japan, India, France and the USA.

b) The Canadian International Development Agency (CIDA), The German Agency for Technical Co-operation (GTZ), Japan International Co-operation Agency (JICA), UNESCO, UNICEF, the Commonwealth Secretariat, UNDP, ILO, the World Bank, the African Development Bank, the British Overseas Development Administration (ODA), the British Council and the various volunteer and non-governmental organizations, e.g. Canadian University Service Overseas (CUSO), British Voluntary Service Overseas (VSO), American Peace Corps, German Development Service Volunteers (GDS), Japan Overseas Co-operation Volunteers (JOCV), etc.

Major components of the support from these friendly foreign countries and international organizations include the following:

- overseas study touts by Principals of public technical institutions and key technical and vocational education administrators to update their knowledge of trends and practices in the technical and vocational education systems in other countries to enable them contribute more effectively to the development of technical and vocational education in Ghana ;

- education and training of staff in various disciplines abroad ;
- practical training in industry overseas ;
- teacher education and training abroad ;
- provision of equipment, spare parts, handtools, materials, books, vehicle, etc. ;
- rehabilitation of existing buildings and replacement of obsolete equipment ;
- provision of technical advisors for some given periods to help carry out some specific projects, e.g. development of various trade syllabuses into Modules of Employable Skills (MES) based on National Occupational Skills (NOS) ;
- conduct of short training courses & organization of conferences, seminars and workshops.

Normally the support given by the above-mentioned friendly foreign countries and international organizations is co-ordinated by the International Economic Relations Division (ERD) of the Ministry of Finance and Economic Planning of Ghana.

Just as the Government of Ghana enjoys support from some friendly foreign countries and international organizations in many sectors of the economy, so does it co-operate with the United Nation's High Commission for Refugees (UNHCR) in supporting refugees in Ghana from all over Africa as well as educating and training a large number of them in various disciplines at various levels in educational institutions in Ghana.

## ENHANCING THE SOCIAL STATUS OF THE TECHNICAL AND VOCATIONAL EDUCATION SYSTEM AND ITS GRADUATES

As has been mentioned earlier in this study, technical and vocational education has a low image in the eyes of Ghanaians. The solution to this problem lies in launching an extensive education campaign not only to disabuse the minds of the public, parents and guardians, the youth and the staff of educational institutions, of the low value generally placed on this type of education, but also to sensitize them to the vast opportunities available to the youth in education and training as well as employment in the technical field.

By means of the on-going educational reforms, pupils are exposed to pre-vocational and pre-technical subjects right from the Basic Education level. This early exposure to technical and vocational subjects encourages those with the aptitude to opt for technical and vocational education at the second-cycle level of education. In this way, they shed any dislike they may have for this kind of education.

To enable technical students to have a sound background in general education, the curriculum of the technical and vocational institutions has been designed to include such general subjects as English and Liberal Studies, Mathematics and Science. This is to ensure that when the technical students complete their course and enter the world of work, they will not be handicapped by a lack of liberal education, but will be well-informed about what goes on in the world around them and be able to interact with others on topical matters.

In general, workers in the private sector with technical and vocational qualifications receive higher remuneration than those with purely academic qualifications. This situation encourages more of the youth to undertake courses, and, later on employment in the technical and vocational field. Now conditions of service in most organizations including the Civil Service, do not discriminate against employees with technical qualifications. It is therefore possible for such employees to imporve upon their qualifications through continuing education so that they may, depending upon the additional qualifications they acquire coupled with their attitude to work and other factors, rise to the highest possible positions in their respective jobs.

The existence of an Association of Principals of Technical Institutions (APTI) in the public system has helped to raise the social status of these Principals and their institutions as well as the status of the entire technical and vocational education system. For a similar purpose, steps are being taken to form a professional association of teachers of technical and vocational subjects.

Trade associations have now been formed in certain trade areas to bring together persons practising the same trades to help them improve their lot by means of various activities, including workshops, seminars and conferences. The cost of providing technical and vocational education and training is really enormous. In Ghana the burden of meeting this cost lies mainly on the Government. Though the Government realizes that providing quality technical and vocational education and training is an expensive venture, it also recognizes the fact that this kind of education and training cannot be dispensed with if Ghana is to progress, or even survive, as a nation in today's world. For any meaningful development of the country to go on, there must be available an adequate supply of skilled technical personnel at various levels. This will make possible the execution of programmes of industrialization, agricultural development, rural development and business promotion, all of which contribute to the socio-econoic development of any country. it is in the light of this that the Government of Ghana continues to take steps to expand and strengthen technical and vocational education and training to support the socio-economic development of the country.

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STRUCTURE OF EDUCATION IN GHANA
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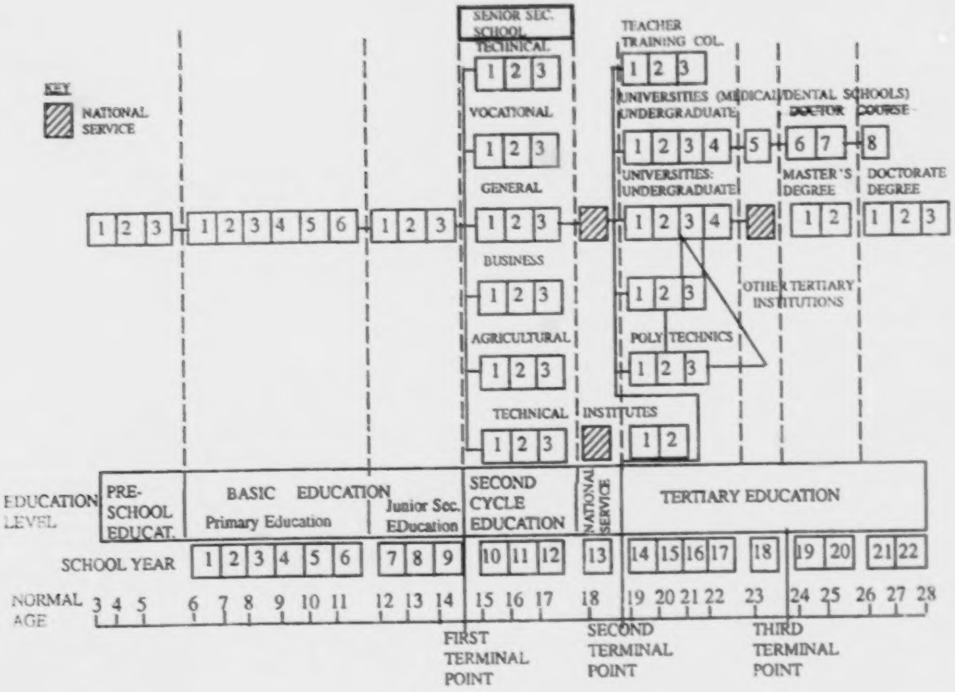
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## SOME MINISTRIES, ORGANISATIONS AND OTHER INDUSTRIAL ESTABLISHMENTS ENGAGED IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING IN GHANA

1. **Ministry of Education**
    - i. Ghana Education Service, Technical Institutes
    - ii. Polytechnics
    - iii. Technical Teacher Education colleges
    - iv. Institute of professional Studies

2. **Ministries of Employment And Social Welfare**
    - i. National vocational training Institute (NVTI)
    - ii. Integrated Community Centres For Employable Skills (ICCES)
    - iii. Opportunities Industrialization Centres (OIC)
    - iv. School of Social Welfare
    - v. Management Development & Productivity Institute (MDPI)
    - vi. Disabled/Physically Handicapped Vocational Institutions

3. **Ministry of transport And Communication**
    - i Ghana Technical Training Centre
    - ii. Posts And Telecommunications school
    - iii. Regional Maritime Academy

4. **Ministry of Local Government**
    - i. Department of Community Development

5. **Ministry of Finance And Economic Planning**
    - i. Accountancy Training School

6. **Office of Head of the Civil Service**
    - i. Government Secretariat Schools
    - ii. Civil Service Training Centre
    - iii. Institute of Technical Supervision
    - iv. Cartographic training School

7. **Ministry of Health**
    - i. Nurses Training Colleges
    - ii. Midwifery training Schools
    - iii. Medical Laboratory Technician Training Institutions

8. **Ministry of Information**
    - i. Ghana Institute of Journalism
    - ii. National film and Television Institute
    - iii. Broadcasting Training School

9. **Ministry of lands and Forestry**
    - i. Survey School
    - ii. Valuation School
    - iii. Forestry School

10. **Ministry of Food and Agriculture**
    - i. Farm Institute
    - ii. Agriculture Colleges
    - iii. Veterinary Training School

11. **Ministry of Science and technology**
    i. Intermediate Technology Transfer Unit (ITTU) under The aegis of Ghana Regional Appropriate Technology Industrial Service (GRATIS)

12. **Ministry of Youth And Sports**
    i. National Youth Organising commission

13. **Private Technical And Vocational Institutions/Schools**

14. **GNTC Technical Institute**

15. **Industrial Establishments which may accept Students and Teachers for Industrial Attachments**
    i. Ghana Highway Authority (GHA)
    ii. Ghana Water And Sewerage Corporation (GWSC)
    iii Electricity Corporation of Ghana (EGC)
    iv Volta River Authority (VRA)
    v. Volta Aluminium Company (VALCO), Tema
    vi. Leyland Motors Ghana Limited, Accra
    vii. GNTC METAL Works Division
    viii. Automotive & Technical Services, Accra
    ix. UTC Motors Division, Accra
    x. SCOA Motors division, Accra
    xi. Auto Parts, Accra
    xii. Japan Motors, Accra
    xiii. Mechanical Lloyd, Accra
    xiv. State Construction Corporation, Accra

# CHAPTER 5

# TECHNICAL AND VOCATIONAL EDUCATION IN KENYA

*P. O. OKAKA*[*]

## THE SOCIO-ECONOMIC STATUS OF THE COUNTRY

Since 1990, Kenya has experienced drastic decline in socio-economic growth caused by adverse effects of economic recession in the world. Other factors which have contributed to this situation include : drought, refugees influx from neighbouring countries and external debt burden, among others. Structural Adjustment Programmes (SAPs) which have been in force for the last three years, coupled with the suspension of the Balance of Payments credit support facilities since November 1991 by the International Monetary Fund (IMF) and the World Bank have tended to worsen the socio-economic situation.

Key economic and social indicators over the period 1988 to 1993, show declines in the growth of the Gross Domestic Product (GDP) at constant prices from 5.1 in 1988 to 0.40 in 1992. The devaluation of the Kenya Shilling in March 1993, caused further decline in GDP (Economic Survey, 1993, Page 11).

Agriculture and Tourism are the major foreign exchange earners in the country. Coffee and tea are the major export crops while horticultural and dairy products are gaining ground. Drought conditions, decline in prices of agricultural commodities in the World Market and steep rise in prices of agricultural commodities in the Domestic Market, have resulted in overall decline in the marketed production of coffee, tea and horticultural produce.

For instance, Coffee Marketed Production declined from 125 thousand tonnes in 1988 to about 88 thousand tonnes in 1992. Tea Marketed production declined from 204 thousand tonnes in 1990 to about 188 thousand tonnes in 1992. However, Tourism earnings rose from 533 million Kenya pounds in 1990 to 713 million Kenya pounds in 1992.

The Gross National Product (GNP) in relation to Kenya's main trading partners - OECD countries, declined from 2.6% in 1990 to 1.5% in 1992. There has been considerable reduction in public expenditure, except for maintenance of refugees from neighbouring countries and food importation caused by drought.

This decline arose out of the general economic recession in the country ; the adoption and implementation of SAPs, which involved deliberate efforts to cut public expenditure, undertake cost-sharing arrangements in financing basic service ; cuts in subsidies, devaluation of the Kenya Shilling in March 1993, liberalization of markets and prices and the general tight fiscal policy.

Depreciation of the shilling pushed up prices which in turn raised production and living costs via more expensive capital goods. This did spill over into more expensive domestic goods.

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The continued reduction in fiscal expenditure is expected to impose a restraining effect on aggregate public consumption, minimize agro-industrial economic growth and give rise to a decline in resources available for the provision of education in training targets.

In spite of these economic hardships the proportion of the Central Government Expenditure on Social Welfare Service declined in the case of Education by 16.72% in 1990 to 15.52% in 1992/93, but rose in the case of Health Services from 3.51% in 1990/91 to 5.05% in 1992/93. Education however, continues to take over 35% of the Government Annual Recurrent Expenditure, leaving 65% to be shared amongst other sectors of General Public Administration and Economic Services.

Table 1 : **Total Expenditure on Education and Health**

| SECTOR | PUBLIC EXPENDITURE ON EDUCATION K£ MILLION | | |
|---|---|---|---|
| | 1990/91 | 1991/92 | 1992/93 |
| **EDUCATION** | 686.95 (16.72%) | 702.38 (15.87%) | 905.85 (15.52%) |
| **HEALTH** | 144.33 (3.41%) | 190.02 (4.29%) | 294.92 (5.05%) |
| **TOTAL PUBLIC EXPENDITURE INCLUSIVE OF PUBLIC DEBT** | 4.106.37 | 4,424.60 | 5,836.84 |

*Source : (Economic Survey, 1993, Page 88).*

The Government's commitment to health services has increased proportion of expenditure on health despite the introduction of cost-sharing.

The Development Expenditure on health services has increased from 27.6 per cent of the Total Expenditure in 1988/89 financial year to over 36.9 percent in the 1992/93 financial year. The number of hospitals, now standing at 277 and Health Centres numbering 357 in 1993, represent an increase of 12.4% over the 1990 figures. Hospital beds and costs increased by a mere 1.3 per cent over the period 1990 to 1993. This minimal increase is due to Government current emphasis on promotive and preventive health services as opposed to curative services for control of community based diseases. In 1990/91 there were 148 beds and cots per 100,000 population as compared to 145 beds and cots per 100,000 population in 1992/93.

Proportionate increase in the population also contributed to this decline. The number of Doctors per 100,000 population is still 15.0 over the 1990-1993 period. Medical Personnel has increased from 35,455 in 1990/91 to 37,847 in 1992/93.

The death rate in 1993 has remained constant at about 13.0 per 1,000 people. Despite the increased public awareness, the prevalence of HIV/AID infection is increasing at a significant rate across population groups, irrespective of social, economic and cultural backgrounds. Community involvement, participation and Basic Functional Education still remain the focus for the control of infectious diseases within the East African Region.

## THE EDUCATION SYSTEM

Kenya Government considers human resource development as one of the most crucial national endevours because human resource underpins every socio-economic activity which determines the development and livelihood of a nation. Currently 38% of the national Recurrent Budget is spent on education and training despite the government's intention to reduce it to below 30%. The Central Bureau of Statistics in its annual publications, the Economic Survey and the Statistical Abstract shows enrollment in Primary, Secondary, Tertiary Eduation Institutes and the National Universities. However, details on some middle level technical colleges, private universities and students studying abroad are not included.

Table 2 : **Growth in Primary Education in Kenya** (1989-1993)

| Year | Nberof Schls | Enroll-ments Boys | Girls | Total | Nberof Teachers Trained | Untrained | Total | % Un trained |
|---|---|---|---|---|---|---|---|---|
| 1989 | 1,691 | 2,766,000 | 2,623,300 | 5,389,300 | 114,087 | 49,522 | 163,609 | 30.3 |
| 1990 | 14,864 | 2,766,300 | 2,262,000 | 5,392,300 | 121,461 | 51,659 | 173,117 | 29.8 |
| 1991 | 15,196 | 2,797,100 | 2,659,000 | 5,456,100 | 129,229 | 44,141 | 173,370 | 25.5 |
| 1992 | 15,465 | 2,806,800 | 2,723,400 | 5,530,200 | 135,405 | 40,954 | 176,359 | 23.2 |
| 1993* | 15,902 | 2,832,695 | 2,633,322 | 5,466,017 | 142,517 | 32,531 | 175,048 | 18.6 |

* As at April 1993

*Source : Economic Survey, 1993 and Ministry of Education unpublished data*

Table 3 : **Growth in Secondary Education (1989-1992)**

| Year | Nber of Schls | Enroll-ments Boys | Girls | Total | Nber of Teachers Trained | Un-trained | Total | % Un-trained |
|---|---|---|---|---|---|---|---|---|
| 1989 | 2654 | 383,135 | 257,695 | 640,735 | 17,139 | 10,917 | 28,056 | 38.9 |
| 1990 | 2678 | 353,695 | 264,766 | 618,461 | 19,431 | 11,190 | 30,621 | 36.5 |
| 1991 | 2647 | 345,788 | 268,373 | 614,161 | 24,471 | 10,626 | 35,097 | 30.2 |
| 1992 | 2632 | 355,097 | 266,364 | 621,443 | 27,447 | 9,113 | 36,560 | 24.9 |

*Source : Economic Survey, 1993 and Ministry of Education*

Table 4 : **Projected Enrollments in Post Secondary Training** (OOOs)

| | 1994 | 1995 | 1996 |
|---|---|---|---|
| Vocational and Tech. Education | 64.2 | 87.3 | 107.6 |
| Special Education | 10.1 | 11.7 | 13.5 |
| Primary Teachers Colleges | 16.0 | 16.0 | 16.0 |
| Diploma Teachers Colleges | 5.1 | 5.4 | 5.8 |
| Graduate Teachers | 12.3 | 12.7 | 13.1 |
| Undergraduates | 38.0 | 39.2 | 40.4 |
| Postgraduates | 2.1 | 2.2 | 2.3 |

*Source : Development Plan 1994-96 (p. 216)*

Human Resources and Human development is an area that has not only attracted a diversity of interests represented by a diversity of parties, ministries and even centres of economic activity but also of programmes and activities.

Table 5 : **Projected Enrollments in various Disciplines at University** (1993-1998)

| Courses | 1993/94* | 94/95 | 95/96 | 96/97 | 97/98 |
|---|---|---|---|---|---|
| Education (Arts) | 2,910 | 2,982 | 2,957 | 3,128 | 3,205 |
| Soc. Sc. & Humanities | 2,369 | 2,427 | 2,482 | 2,547 | 2,602 |
| Commercial Studies | 583 | 598 | 612 | 628 | 64 |
| Information Sciences | 81 | 83 | 84 | 85 | 88 |
| Law | 174 | 177 | 182 | 187 | 190 |
| Education (Science) | 908 | 942 | 977 | 1,015 | 2,053 |
| Natural Sciences | 1,329 | 1,380 | 1,434 | 1,489 | 1,546 |
| Agriculture | 1,138 | 1,181 | 1,226 | 1,274 | 1,322 |
| Veterinary Sciences | 111 | 115 | 119 | 123 | 129 |
| Medicine | 246 | 255 | 264 | 276 | 285 |
| Engineering and Tech | 570 | 609 | 637 | 661 | 686 |
| Architecture | 173 | 180 | 187 | 197 | 200 |
| **Total** | **10,934** | **11,934** | **11,264** | **11,660** | **11,954** |

* Actual enrollments

*Source : Commission for Higher Education*

Table 6 : **Postgraduate Students by Course (1993-1998)**

| Course | 93/94* | 94/95 | 95/96 | 96/97 | 97/98 |
|---|---|---|---|---|---|
| Engineering and Tech. | 75 | 80 | 83 | 86 | 93 |
| Agriculture | 202 | 215 | 223 | 232 | 250 |
| Medicine | 207 | 221 | 230 | 238 | 257 |
| Veterinary Sciences | 74 | 79 | 82 | 85 | 92 |
| Natural Scences | 299 | 319 | 332 | 344 | 371 |
| Architecture | 74 | 79 | 88 | 85 | 92 |
| Soc. Sc. & Humanities | 960 | 1,010 | 1,035 | 1,058 | 1,126 |
| Education | 143 | 155 | 155 | 159 | 169 |
| Law | 20 | 21 | 22 | 23 | 25 |
| Commercial Subjects | 88 | 93 | 95 | 97 | 103 |
| Information Science | 56 | 59 | 61 | 62 | 66 |
| **Grand Total** | **2,400** | **2,327** | **2,400** | **2,469** | **2,644** |

* Actual enrollments

*Source : Commission for Higher Education*

In Summary, to date there are 5.5 million pupils in primary schools, 620,000 pupils in secondary schools, 64,200 students in vocational and Technical Training Institutes, 20,000 in

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Teachers Colleges and 40,000 in Public Universities. In 1993, of 400,000 pupils who took the Kenya Certificate of Primary Education, only 45% proceeded to secondary schools ; and of the 140,000 who took the Kenya Certificate of Secondary Education only 6,6% will join the national universities. There is therefore an urgent need to absorb the large numbers of both primary and secondary school leavers in productive economic activities.

In order to establish the changing skill demands in the country, Kenya Government carried out a manpower survey, between 1986-88 which revealed that an overall demand of occupational employment in the modern sector is expected to grow by 40% per year (Carpentry and Joinery, Textiles and Food Processing - 10%, Electrical Trades - 7%, Mechanical Engineering 8% and Business Courses - 4%). The projected growth is consistent with the prediction of Sessional Paper n° 1 of 1986 on "Economic Management for Renewed Growth" (Kenya, 1986).

Since the informal sector is expected to play a major role in economic activities, it follows that a good proportion of the products of Technical Training Institutes will be absorbed by the sector. The actual absorptive capacity of the sector has not been determined.

As can be seen from Table 4 the liberal arts related courses will continue to be dominant at undergraduate level. The plan is to annually increase the Science based courses so as to achieve a ratio of 50.50 for Science to Arts disciplines. Increased participation of women will be realised by lowering female entry points by one point.

There is still some degree of uncertainty in the demand for skills in the economy. To start with, there is need to carry out a new Manpower Survey since the one carried out in 1986 is now outdated. Even when a new Manpower Survey is carried out the accuracy of projections will depend on, amongst other things, demographic trends and policy changes which open economies to international trade and technological change ; factors which in themselves are very difficult to predetermine.

## THE TECHNICAL AND VOCATIONAL EDUCATION SYSTEM

### *Introduction*

Technical training as an art and science began in Kenya a very long time ago. Long before the arrival of the Europeans, Kenyans knew how to build their houses, fashion agricultural implements ; and make spears, knives, hoes, axes, cooking utensils and water containers, etc. The ancient art and technical skills made the life of our people relatively more comfortable to a degree allowed by their own natural environment and skill competencies. Traditionally, these skills were passed from father to son within the family or clan in form of an apprenticeship system.

The coming of the Europeans and the decision to build the Uganda railway which attracted the Indian traders and labourers were instrumental in training of artisans and craftsmen at Kabete Native Industrial Training Depot starting from 1924. The Christian Missionaries brought in technicians and made an effort to train Kenyans in the different skills to assist the maintenance of the services and their operations. Such places as Mumias, Kikuyu and Machakos were some of the earliest sites for technical training.

### *Growth and Development in TVE*

The second world war brought a greater influx of people, more sophisticated equipment and machinery and greater need for training. Army corps were established and recruitment on a very large scale began among the Kenyans. The need was then for drivers, mechanics, builders, electricians, welders, carpenters, clerks, etc. More so called *fundis*, brought their skills after the war and set themselves up in the locations as craftsmen and were very useful. In the late forties and early fifties, there were more young Kenyans qualifying from primary schools. Industrial Depots were upgraded to vocational schools and in the early sixties were again converted to secondary vocational schools.

Another major breakthrough for technical and vocational training in Kenya was the setting up in 1954 of a Commission for Higher Education whose main recommendation was the establishment of the Royal Technical College, Nairobi. This institution later became Nairobi University College and thereafter the University of Nairobi. The Mombassa Institute of Moslem Education (MIOME) was already in existence having been established in 1948 to provide technical and vocational education to Moslem students of East Africa. In 1966, it was converted into Mombasa Technical Institute and became Mombasa Polytechnic in 1972. In 1961, the Kenya Polytechnic was established to provide basic craft courses which were phased out beginning from 1966 following the introduction of similar courses in vocational schools and technical high schools.

Since independence, there has been tremendous growth and development of technical and vocational education and training as a result of direct Government and community participation. In the late 1960's and 1970's the Government developed industrial education and home science in 35 secondary schools. At the same time, 18 technical secondary schools were established to offer technical education at secondary school level. These were converted into technical training institutes in 1986 when they started offering artisan courses. In 1987, there were 3 national polytechnics, the Kenya Technical Teachers College, 15 Technical Traning Institutes, 17 institutes of technology, and several other vocational training programmes for school leavers run by Government Ministries, parastatals, non-governmental organisations, industrial firms and private individuals.

There has been a great increase in student enrollment. In 1964, for instance, technical training institutions had an enrollment of 2,065 students which increased to 8,025 in 1975. Today, these institutions have a total enrollment of about 60,000 students.

Technical and vocational training has come through many phases and patterns, and now it is no longer regarded exclusively as for the second and third rate student, but as a very important and integral part of Kenya's education system.

It has expanded fairly fast and programmes of far reaching importance have been developed. The aim of these programmes is to simultaneously produce lower, middle and higher level technical manpower for commerce and industry within the framework of the 8:4:4 technical and vocatioal training tier. This tier caters for both primary and secondary school leavers and focuses on the expansion of training opportunities and raising of levels of competence of graduates in order to absorb the soaring number of school leavers in self and wage employment. The development of technical and vocational training can be traced in the following four major eduational reviews carried out during the last two decades :

1. The Kenya Education Commission of 1964/65.
2. The National Committee of Educational Objectives and Policies (NCEOP) of 1976.
3. The Presidential Working Party on the Second University in Kenya of 1981.
4. The Presidential Working Party on Education and Manpower Training for the Next Decade and Beyond of 1988.

The restructuring of the education system to 8:4:4 was a result of one of the recommendations of Presidential Working Party on the Second University whose report was presented to His Excellency the President in September 1981. The report was subsequently accepted by the Government in March 1982. One of the aims of the 8:4:4 system of education is to provide practical oriented curriculum that will offer a wider range of employment opportunities. The students graduating at every level are expected to have some scientific and practical knowledge that can be utilized for either self-employment, salaried employment or for further training. The new curriculum lays emphasis on continuous assessment as an integral part of evaluating students abilities and achievements. At every level students explore a variety of subjects to develop a wide range of interests and skills and to enhance self-reliance.

### *Objectives of Technical and Vocational Education and Training*

Over the last thirty (30) years during which period Kenya has been independent, the government has continuously, through various Education Commissions, reviewed the education and training system so as to ensure that it serves and satisfies the aspirations of the country's youth as well as catering for the wider interests of national development.

Kenya's main aim of the Technical and Vocational Education and Training policy is to improve the quality of training at all levels so that the trained manpower can enhance and sustain a high level of economic development which would in turn improve the quality of life by raising the standards of living.

The technical and vocational education and training programmes are designed to achieve the following national aims and also be in line with the recommendations of the Sessional Paper n° 6 of 1988 on Education and Manpower Training for the Next Decade and Beyond :

i) To provide increased training opportunities for the increasing number of school leavers to enable them to be self-supporting.

ii) To develop practical skills and attitudes which will lead to income generating activities in the urban and rural areas through self-employment.

iii) To provide practical education and training skills which are responsive and relevant to Kenya's agricultural, industrial, commercial and economic needs.

iv) To provide the technical knowledge and vocational skills necessary to enhance the pace of this nation's development.

v) To encourage self-employment while at the same time producing skilled artisans, technicians and technologists for both formal and informal sectors at the ratio of 1 technologist to 5 technicians to 30 craftsmen/artisans (1:5:30).

The courses are developed with reasonable flexibility to allow for horizontal and vertical mobility in terms of further education and training and in relation to the world of work.

With emphasis on technical and vocational education at a primary and secondary levels, the focus is to ensure that students graduating at every level, have some scientific and practical knowledge that can be utilized for either self-employment, salaried employment or further training.

It is anticipated to reduce the mismatch between demand and supply of skilled manpower and provide skills to those who would otherwise have wished to pursue further education, mould the attitudes of the youth towards the world of work.

To this end, the pre-vocational component at various levels of education and training system in Kenya specifically aims at achieving the following :

### *TVE at the Primary Education Cycle*

The target population is the six year old children. The primary education aims at providing the children with adequate intellectual and practical skills useful for living in both urban and the rural areas.

The primary education curriculum is based on three broad principles, which are : improving its quality, content and relevance to cater for the majority of children for whom primary education is terminal; to be available to all primary school age children and diversifying primary education in order to enhance competence in a variety of development tasks to enable the pupils to make useful and functional articles.

The curriculum includes such practical subjects in addition to aademic subjects as :

i) Home Science (with topics as Needlework, Child Care, Food preparation and Care of Home).

ii) Art and Craft (with topics as Drawing, Painting, Graphic Design, Collage/Mosaic Weaving, Ornament Making, Clay Work/Pottery, Leatherwork, Modelling and Carving, Fabric, Design, Puppetry, Woodwork, Metalwork and Building Construction).

iii) Agriculture with practical activities such as growing crops, rearing of domestic animals : poultry and bee-keeping, making farm tools, caring for the soil and environment.

The subjects are taught as outlined below :

| Subject | Lower Primary | Upper Primary | Examination |
|---|---|---|---|
| | **Periods/week** | **Periods/week** | |
| 1. English | 5 | 5 | 1 paper |
| 2. Kiswahili | 5 | 4 | 1 paper |
| 3. Mathematics | 5 | 6 | 1 paper |
| 4. Science | 3 | 3 | 1 paper |
| 5. Agriculture | - | 3 | 1 paper |
| 6. Art | - | 3 | 1 paper |
| 7. Craft | - | 4 | 1 paper |
| 8. Home Science | - | 4 | 1 paper |
| 9. Music | 2 | 2 | 1 paper |
| 10. Geography | - | - | - |
| 11. History and Civics | 2 | 2 | 1 paper |
| 12. Religious Ed. | 4 | 3 | 1 paper |
| 13. Pastoral Prog. | 1 | 1 | 1 paper |
| 14. Physical Ed. | 5 | 3 | 1 paper |
| 15. Business Ed. | - | 3 | to be examined in one of the above papers |
| 16. Art and Craft | 3 | - | - |
| 17. Mother Tongue | 5 | - | - |
| **Total** | **40** | **50** | **6 papers** |

*TVE at The Secondary Education Cycle*

The target population for this level is the children of 14 years and above. The cycle aims at preparing the learner to make a positive contribution to the development of a society, building a firm and enriched foundation for further education and training, and instilling the kind of attitude that is in line with development endeavours of both the individual and the nation. Along academic subjects, the curriculum includes Agriculture, Woodwork, Metalwork, Power Mechanics, Electricity, Drawing and Design, Building Construction, Home Science, Business Education (Accounts, Commerce, Typing and office Practice), Art and Design and Music. Students are required to take at least one practical subject. The subjects are clustered as outlined below :

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Table 7 : SUBJECT CLUSTERS AT SECONDARY EDUCATION CYCLE

| DISCIPLINE | SUBJECT OFFERINGS | OPTIONS AND CHOICES FORM 1 & 2 (13 Subjects) Compulsory | KCSE EXAMS (Options & Choices) FORMS 3 & 4 ( 10 OR 11 Subjects) Group` 1 Compulsory |
|---|---|---|---|
| 1. Communication | English<br>Kiswahili<br>Foreign Languages | English<br>Kiswahili | English<br>Kiswahili |
| 2. Mathematics | Mathematics | Mathematics | Mathematics |
| 3. Sciences | Physical Sci.<br>Biological Sciences | Biological Ed.<br>Physical Sciences | Biological Sciences or Biology, Physical Sciences or Physics or Chemistry |
| 4. Humanities | Geography, History and Government<br>Religious Education | Geography, History and Government<br>Religious Ed. | Geography<br>History and Government<br>One of the following : Christian Releg. Ed. Islamic Ed.ucation, Hindu Relegious Education |
|  | Social Ed<br>Ethics | Social Ed. and Ethics | Social Ed. and Ethics |
| 5. Apllied Ed. | Agriculture<br>Industrial Ed. Wood work<br>Metal work Power Mechanics Electricity<br>Building Constuction<br>Drawing & Design<br>Business Education II<br>Accounting Commerce<br>Typing and Office Practice<br>Economics<br>Home Science, Clothing and Textiles, Food & Nutrition | Agriculture<br>Applied subj. One of the following : Metal work<br>wood work Power Mechanics Electricity<br>Building Construction<br>Drawing and Design<br>Home Science.<br>One of the following : Music, Art and Design<br>Foreign Language<br>Art and Design Music | One of the following<br>Home Science, Agriculture, Woodwork<br>Building and Construction<br>Power Mechanics<br>Electricity, Drawing and Design, Art and Design<br>Social Education<br>Ethics<br>One of the following : French, German, Music, Accounting, Commerce<br>Economics, Typewriting and Office Practice<br>Arabic. |
| 6. Physical Ed. |  |  |  |

*Source : Ministry of Education*

### *Skills Improvement Courses*

These are short courses in a variety of trades to provide primary school leavers or employees in industry with proficiency skills. The training is practical rather than theoretical, to enable trainees to engage in self and salaried employment.

### *Artisans Level of Courses*

These are two years courses of various trades primarily for Primary School leavers. The curriculum comprise 90% trade area and 10% supportive subjects. Due credit is given to holders of trade test certificates or equivalent qualifications. The courses, are designed to provide the youth with skills to enable them to earn a livelihood in either urban or rural area. The small scale entrepreneurs also employ these Youth Polytechnic graduates as they can afford to pay them as compared to craft level graduates.

These courses are offered in Youth Polytechnics (YPs), National Youth Service Training Schools, to some 40,000 primary and secondary leavers. Other training institutions include Christian Industrial Training Centres and Rehabilitation Centres (Industrial Rehabilitation Centres and sheltered workshops for mainly disabled persons), Private and NGO's managed institutions.

### *Craft Level Courses*

These are three years courses for various trades for graduates of artisan programmes and secondary school leavers. The curricula comprise 80% trade area and 20% supportive subjects. Due credit will be given to those who have performed well in the appropriate trade subjects in secondary education or related training.

These courses are being offered to some 17,600 trainees in Institutes of Technology (ITS) (4600 trainees 1989), Technical Training Institutes (TTIs) (8,000 trainees), National Youth Service Training Institute, Kenya Industrial Training Institute, Government Ministries such as: Agriculture (400 trainees) 1991, Ministry of Cooperative Development (60 trainees), Utalii College (173 trainees) 1991.

The trained graduates enter the labour market through employment or self-employment. The Government absorbs some of the graduates in its Ministries and parastatal organisations but no longer guarantees employment.

### *Technician (Diploma) Level Courses*

These are three years courses in various fields of study for graduates of craft programmes and secondary school leavers with Kenya Certificate of Secondary Education. The curricula comprise 60% trade area and 40% supportive subjects. The courses are offered to some 5,700 trainees in National Polytechnics, Institutes of Technology and other Government and Parastatal training institutes such as Utalii College, and Kenya Water Institute.

The graduates enter private or public sector for employment. As for the craft graduates, the Diploma graduates mainly enter for employment but eventually some revert to self-employment. Observations indicate that those 'elite' *Jua Kali* entrepreneurs were previously employed.

### *Technologists (Bachelor of Technology) Level Courses (proposed)*

These will be two year graduate courses for holders of Diploma or equivalent qualifications in the new 8:4:4 Technical and Vocational Training when fully operational.

The curriculum will comprise 30% practical in the area of specialization and 70% analytical and theoretical treatment in the supportive subjects.

### *Advanced Technologists (Master of Technology) Level Courses (proposed)*

These will be two year post-graduate courses programmes, for the 8:4:4, First Technological degree holders when the programmes become fully operational. The curriculum will comprise 20% practical work in the area of specialization and 80% analytical and theoretical treatment in the supportive subjects.

### *Technical and Vocational Education Institutions Offering Training*

#### *Youth Polytechnics*

Over 600 Youth Polytechnics have been established by local communities throughout the country. The main function has been to train primary school leavers in vocational skills. Basic technical craft skills such as Masonry, Carpentry and Joinery, Metalwork, plumbing, tailoring, etc. are taught. On completion of the initial training, students sit for Government Grade Test III.

Youth Polytechnics have been developed as training institutions that are work oriented in the communities in which they are established.

An attempt has been made to provide curricula that are relevant to the varying needs of different local communities and emphasis is on training for self-employment.

Since 'self-help' is the key factor, the degree of success of a particular youth polytechnic depends very much on local leadership and local conditions. As a result there is a marked imbalance in developing and running such institutions from one locality to another.

The Youth Polytechnics system is by far the largest vocational training programme in Kenya today in terms of enrollment and number of institutions involved.

There are over 600 Youth Polytechnics in Kenya, out of which about 350 are Government supported in terms of grants, salary for instructors and provision of equipment. The rest are supported by local communities, religious organisations and other non-governmental organisations. The enrolment in youth polytechnics is approximately 40,000 students. The trainees are normally recruited from the institution's immediate communities. On completion of their courses a large number of trainees join the Jua Kali sector.

The Ministry of Research, Technical Training and Technology has approved 68 Youth Polytechnics to offer Kenya Institute of Education (KIE) developed curricula, besides the Government Trade Test they have been offering. This is in line with recommendations of Sessional Paper n° 6 of 1988. Earlier on, the Gachathi Report (1976, page 6) recommended the co-ordination and development of Youth Polytechnics in relation to other technical education and training institutions with a view of integrating them with programmes of the Directorate of Industrial Training.

The thrust of the Ministry is to co-ordinate all the training programmes in these institutions by providing them with approved curricula, training tools and equipment and trained staff so as to raise the training standards. The 68 Youth Polytechnics are currently offering the following artisan courses : Carpentry and Joinery, Masonry, Plumbing, Garment Making, Welding and Fabrication, Electrical Installation, General Agriculture, Clerks/Typists, Motor Vehicle Mechanics and General Fitter.

A tracer study report on technical training and work experience in Kenya (Yambo 1987 Pg. 3) shows that 37.8 per cent of Youth Polytechnics graduates were self-employed during the first year of their work-role while 62.2 per cent were in wage employment.

To support the Youth Polytechnic graduates to venture into the formal sector, the Government has established youth training support programmes which aim at employment creation for the youth of Kenya. Further, the Government has established Kenya Youth Training and Employment Creation Project (KYTEC) to provide credit facilities for Youth Polytechnic graduates venturing into informal sector.

### *Technical Training Institutes*

With the implementation of the 8:4:4 system of education, the former secondary technical schools have been converted into Technical Training Institutes. The current set-up is that the Technical Training Institutes have a dual post-primary and post-secondary training role. The post-school training programmes take the form of specialised instruction in technical and commercial fields.

At present some Technical Training Institutes offer a two year post-primary artisan courses in various trades; three years post-secondary craft courses and three years ordinary diploma courses.

The technical training programmes are meant to equip the students with marketable skills which will enable them to enter directly to wage employment or start and manage their own enterprises. To this end, the curricula have been expanded to include entrepreneurship education to facilitate entry into self-employment.

There are 19 Technical Training Institutes with a total enrollment of 7,891 students (1992 figures). Enrollment in Technical Training Institutes at various levels of training in 1992 is as shown below :

Table 8 : **ENROLLMENT IN TECHNICAL TRAINING INSTITUTES**

| | M | F | Total |
|---|---|---|---|
| Artisan level courses | 720 | 860 | 860 |
| Craft level courses | 4,381 | 1,696 | 6,077 |
| Diploma level courses | 567 | 387 | 954 |
| **Total** | **5,668** | **2,223** | **7,891** |

### *Institute of Technology*

The Institutes of Technology, formerly known as Harambee Institutes of Technology were established at the beginning of the 1970's by local communities on Harambee (self help) basis, in response to the social demands on the training needs for secondary school leavers. The Institute of Technology therefore aims at providing secondary school leavers with relevant skills at craft or diploma level which can enable them to be employed or engaged in self-employment activities.

Presently, there are 20 Institutes of Technology in the country with a total enrollment of almost 6,000 students, as shown below.

Enrollment in the Institutes of Technology at various levels of training in 1992 is as shown below :

Table 9 : ENROLLMENT IN THE INSTITUTES OF TECHNOLOGY AT VARIOUS LEVELS OF TRAINING IN 1992

| | M | F | Total |
|---|---|---|---|
| Craft level courses | 3,002 | 1,678 | 4,680 |
| Diploma level courses | 358 | 61 | 419 |
| Artisan level courses | 69 | 113 | 182 |
| **Total** | **3,429** | **1,852** | **5,281** |

At the initial stages of the development of Institutes of Technology, the Government support was limited to that of advising and supervising construction works to ensure that stadards were maintained in buildings and other facilities. Gradually the Government assistance has been given in form of training teachers and financial support.

With regard to student admission, Institutes of Technology have taken a national outlook in that they admit students from all corners of the Republic with the home district retaining a higher quota.

Over the years the Institutes have developed and expanded their objectives. They have established production units, which, apart from generating income to off-set the running costs of their activities, provide real working situations which serve as industrial attachment, while at the same time providing the relevant exposure and experience to those who aspire to become self-employed in future.

The Institutes of Technology, which started as small localised community training institutions, have grown in size, scope and in number to the extent that they now form part of the Kenya's national system of technical and vocational education and training.

### *National Polytechnics*

The National Polytechnics are institutes of higher learning whose main function is to produce skilled middle and high level manpower for Kenya's various sectors of the economy and for the provision of further training opportunities in technical education.

National Polytechnics offer diversified curricula at diploma and higher national diploma levels.

Training programmes at National Polytechnics are limited to the provision of training for secondary school leavers. Equally important, National Polytechnics mount "tailor made" courses either in the evenings or during holidays to upgrade skills of workers in the industry and Jua Kali sectors.

National Polytechnics have made research a part of the curricula they offer in an attempt to stimulate skills for inventions, innovation and technological capacity improvement in Kenya.

Noting the important role played by the National Polytechnics, their activities can be summarised as follows :

a) Act as centres of excellence in matters relating to technical education and vocational training.

b) Continue to play a leading role in the production and development of technical education and applied technology.

c) Increase and diversify the training programmes for middle and higher level manpower needs in the country.

d) Ensure that future technicians and technologists are competent to perform their jobs.

At present there are three National Polytechnics namely Kenya Polytechnic, Mombasa polytechnic and Eldoret Polytechnic. The total student enrollment in the three national polytechnics is 9,031 students undertaking various courses in building and civil engineering, surveying and mapping, applied sciences, business education, chemical engineering, etc.

Student enrollments at the three national polytechnics on departmental basis is as shown below :

Table 10 : KENYA POLYTECHNIC (1991) ENROLLMENTS

| | M | F | Total |
|---|---|---|---|
| Graphic Arts and Printing | 1,128 | 466 | 1,594 |
| Building and Civil Engineering | 481 | 29 | 510 |
| Surveying and Mapping | 303 | 56 | 359 |
| Mechanical Engineering | 583 | 14 | 597 |
| Electrical Engineering | 534 | 35 | 569 |
| Institutional Management | 14 | 347 | 388 |
| Business Studies | 274 | 462 | 736 |
| Computer Sciences | 62 | 45 | 107 |
| Mathematics & Statistics | 153 | 63 | 216 |
| Applied Sciences | 325 | 80 | 405 |
| Information & Liberal Studies | 328 | 299 | 62 |
| Total | 4,212 | 1,896 | 6,108 |

Table 11 : MOMBASA POLYTECHNIC (1992) ENROLLMENTS

|  | M | F | Total |
|---|---|---|---|
| Applied Sciences | 165 | 78 | 243 |
| Building & Civil Engineering | 247 | 9 | 256 |
| Mechanical Engineering | 299 | 2 | 301 |
| Electrical Engineering | 493 | 17 | 510 |
| Business Studies | 353 | 320 | 673 |
| Diploma in Medical Eng. | 54 | - | 54 |
| Computer Sciences | 110 | 77 | 187 |
| Total | 1,721 | 509 | 2,230 |

Table 12 : ELDORET POLYTECHNIC (1992) ENROLLMENTS

|  | M | F | Total |
|---|---|---|---|
| Mechanical Engineering | 79 | 2 | 81 |
| Chemical process Technology | 102 | 9 | 111 |
| Business Studies | 338 | 170 | 508 |
| Total | 519 | 181 | 700 |

Kenya continues to be committed to the International and Regional Co-operation in the development and implementation of technical and vocational education and training with all countries. In this regard our National Polytechnics have been linked with other polytechnics in Africa through the Commonwealth Association of Polytechnics in Africa (CAPA). The formation of CAPA by the Commonwealth member states in 1977 was an attempt to overcome the isolation of individual institutions by enabling them to work together on many aspects of the provision of education and development of their cooperate life. This co-operation can be further narrowed to East African states in an attempt to enhance job creation opportunities in the informal sector.

### *Kenya Technical Teachers College (KTTC)*

The effectiveness of any education system is dependent upon the quality of teaching and the availability of quality teachers at all level.

The Kenya Technical Teachers College (KTTC) was established to meet the need for a wide range of teachers in technical and business education. KTTC trains teachers for business and technical education in Youth Polytechnics, secondary schools, Technical Training Institutes, Institutes of Technology, National Polytechnics, Primary Teachers' Colleges, and Instructors for Vocational Training Centres.

Since 1989, Kenya Technical Teachers College phased out the initial long term training programmes of 3 to 4 years and is now mounting 1 to 2 years plus Technical Teacher Training Programmes.

The one year Technical Training Programmes cater for applicants with technical qualifications and a minimum of two years' work experiene in their areas of specialisation. A two year training programme meant to upgrade technical skills of trainees while undertaking teacher training is also available.

The College offers diplomas in :

i) Technical Education in Industrial Education
ii) Business Education and
iii) Technical Education

The duration of the course at KTTC depends on entry qualifications of the trainees as follows :

a) *Diploma in Technical Education (2 years)*

Admission is open to holders of the following or equivalent qualifications :

- Certified Public Accountant Part I (CPA I)
- Kenya National Examinations Council (KENEC) group subject Stage III

b) *Diploma in Technical Teacher Education (1 year)*

Admission is open to holders of the following or equivalent qualifications :

- Techician Certificate Part II
- Diploma Certificate
- Higher Diploma Certificate
- Certified Public Accounts Part II

c) *Certificate in Technical Education (1 year)*

Admission is open to holders of the following qualifications :

- Craft Part II of Final Craft Certificate in Home Sciences or Clothing Technology

d) *Instructors Certificate*

Admission is open to holders of Government Trade Test Grade II or I or a higher qualification and employed as an instructor in Industry or Youth Polytechnic. The course is offered in three modules each of 3 months and spread is over a period of two years.

Technical training programmes offered at the Institutes of Technology and Technical Training Institutes are being expanded and diversified. To meet technical teacher requirements for the new programmes, KTTC has embarked on in-service courses for serving technical teachers in order to upgrade their skills to higher diploma levels.

### *Other training Institutions*

Government Ministries other than the Ministry of Research, Technical Training and Technology have their own training institutions which offer specific training to suit their needs. For example, the Railway Training Institute, Cooperative College of Kenya, Kenya

College of Telecommunications Technology, Water Institute, etc. These institutions have courses geared towards specific areas of operations though some of them have now started offering 8-4-4 Technical Training programmes. Therefore, they now allow non-institutional students to join their training institutions.

The Kenya National Youth Services (NYS) has a number of Colleges and Vocational Schools in different parts of Kenya that give high quality training. This training covers a whole range of occupations that include : agriculture, plumbing, dressmaking, secretarial studies, fitting, tailoring, welding carpentry, masonry, upholstery, plant operations, driving, catering and accommodation, etc.

Examples of some of these Training Institutions described here include :

1. Agricultural Institutes - Embu, Bukura, Kilifi
2. Cooperative College, Kenya
3. Kenya Utalii College
4. Kenya Water Institute
5. Railway Training Institute
6. National Youth Engineering Institute
7. National Youth Service Secretarial College
8. National Youth Service Catering College
9. Kenya Institute of Mass Communication
10. Medical Training College
11. Kenya College of Communications Technology
12. Karen Technical Training Institute for the Deaf
13. Starehe Boys Centre Technical Institute
14. Komothai Girls Technical High School
15. Kenya Industrial Training Institute

Privately run training institutes are many and form a large part of the training system. These institutions are required by law to be registered by the Ministry of Research, Technical Training and Technology and also to be given approval to run technical courses. This is an effort to maintain training standards.

These institutions offer technical and business courses to secondary school leavers. Many of them use national syllabi leading to national examinations offered by KNEC or KASNEB. There are also a few areas where City and Guilds and Pitman Examinations are still offered e.g. in Computer Courses. As more of the national syllabi become available, institutions are expected to phase out the foreign syllabi and certification.

### *The Directorate of Industrial Training*

This is a department of the ministry of Research, Technical Training and Technology ; it is headed by a Director with a Deputy Director and several assistants for execution and supervision of Industrial Training functions. It has five (5) main sections for administrative and operational purposes. These are training centres, technical section, curriculum section, levy administration section and administrative section.

The Directorate operates under an Act of parliament. "The Industrial Training Act, Cap. 237, Laws of Kenya" (1971). The Act makes provisions for the regulation of the training of persons engaged in industry.

The Act is governed by a tripartite council consisting of a chairman, six representatives from employers, (FKE), six representatives from employees (COTU) and not less than six chosen to represent other interests (e.g. Government, teachers, etc.). The Director is the secretary to the council.

The duties of the council as prescribed by the Act are :

a) It shall secure the greatest possible improvement in the quality and efficiency of the training of personnel engaged in industry ;

b) It shall ensure an adequate supply of properly trained manpower at all levels in industry;

c) It shall advise the minister on the best way of conducting tests and granting of certificates of proficiency and ;

d) It shall handle disputes relating to contracts of apprenticeships or learnership or any matter referred to it by the Minister.

The council has established eleven (11) training committees to exercise its functions in relation to training for specific industries. Currently all employers are categorized into eleven (11) industrial sectors depending on their major lines of activity and in accordance with the established levy orders.

### *The National Industrial Training Schemes*

The goals are :

a) To establish national training standards and common working conditions for all trainees working in industry ;

b) Promoting and developing systematic training programmes in industry for trainees;

c) Meeting the present and future needs for skilled workers in the country ;

d) Creating more opportunities for school leavers and existing personnel in industry to undertake industrial training.

The following training schemes have been established by the council in pursuance of the Industrial Training Act of 1971 Cap 237 (Laws of Kenya) :

i) Indentured Learnership
ii) Skill Upgrading Courses
iii) Craft Apprenticeship
iv) Technician Apprenticeship

v) Management and Supervisory Courses (Locally and overseas).

*Recruitment Conditions*

Employers are responsible for selection and recruitment as dictated by their organisation's requirements. Contracts of apprenticeship must be signed by the employer, learner/apprentice and the DIT.

The Director in consultation with the Council is empowered to register the conditions of apprenticeship or Identured learnerships.

An Identured Learner/Apprentice may be employed by an employer who employs more than four skilled workers on a full time basis. The employer, however, must apply for permission from the Director of Industrial Training to employ the indentured learner/apprentice in those areas of his undertaking within which the said skilled workers are employed.

Permission will only be granted if the Director of Industrial Training is satisfied that the employer's establishment offers reasonable opportunities for the proper on-the-job training of indentured learner(s)/apprentice(s) that the employer proposes to employ.

*Minimum Entry Requirements*

For each scheme the trainee must be aged above 15 years and be mentally/physically fit or else special permission of the Director will be necessary. Educational minimum requirements are as follows :

- Identured Learnership-KCPE Certificate and/or Trade Test Grade III (Std VII or Std VIII);
- Craft Apprenticeship-KCSE (Grade D aggregate) Certificate and/or Artisan Certificate;
- Technician Apprenticeship-KCSE (Grade C aggregate with C in appropriate subject(s). Certificate or Craft Certificate.

*Duration of Scheme Contracts*

Indentured Learnership-12 months (1 year) Craft Apprenticeship : 3 to 4 years Technical Apprenticeship: 3 to 4 years.

*Definitions*

a) Indentured Learnership

An indentured learnership is defined as a person bound by a written contract to serve an employer for a determined period of time of 6 months to 1 year for the purpose of learning a trade or occupation in which he or she is employed. The employer will pay the indentured learner a wage throughout this period.

b) Technician Apprenticeships

A technician apprentice is defined as a person bound by a written contract to serve an employer for a determined period of time of four years for the purpose of becoming a qualified technician in the occupation in which he or she is employed. The employer will pay the apprentice a wage throughout this period.

*Levy Fund Benefits*

a) Indentured Learnership

A levy contributing employer who is party to a contract of indentured learnership receives the following benefits :

i) refund of some of the training costs ;
ii) improved productivity because the employee is not away from the job for long hours as most of the training is on the job only a few theory lessons away from the job.

Levy reimbursement is normally made for a specific period of contract. The normal salary for an indentured learner is just below the minimum wage of a Grade I Artisan, although this will vary from industry to industry.

b) Craft Apprenticeship

A levy contributing employer who is a party to a contract of craft apprenticeship receives the following benefits :

i) refund of cost of approved tools and protective clothing (detailed information available on request) ;
ii) refund of wages paid to apprentices when they are attending in-centre courses in any of the DIT centres ;
iii) refund of approved tuition and accommodation costs of apprentices ;
iv) refund of costs of approved books and ;
v) free annual grant to meet costs of in-plant (or in-service) training facilities offered to each apprentice at the employer's work premises.

c) Technician Apprenticeships

A levy contributing employer who is a party to the contract of technician apprenticeship receives the following benefits :

i) refund of costs of approved tools, overall, etc. ;
ii) refund of wages paid to apprentices when they were attending in-centre courses in any of the National Polytechnics ;
iii) refund of approved tuition and accommodation cost of apprentices ;
iv) refund of costs of approved books ;
v) free annual grant to meet costs of in-plant (or in-service) training facilities offered to each apprentice (detailed information is available on request).

### *Industrial Training Centres (ITCs)*

There are four ITCs whose primary role is to train for formal industry. These centres also conduct skill upgrading evening courses for both formal and informal sector employees. Three of the centres offer courses in the Engineering fields of Mechanical Electrical, Automotive and Building trades. One centre offers courses for the Textile industry. Each of the centres has residential hostels with capacity for about two hundred and fifty (250) trainees, male and female. The centres have adequate physical facilities for practical and theoretical training in the respective trades. The instructor/trainee ratio has always been maintained at 1:20 maximum, for effective training.

For regular courses recruitment is continuous throughout the year as it is done by employers. Call-up and programming for regular courses is done centrally by the DIT's Technical Section after reviewing employers' recruitment. As such, the centres do not have much say in recruitment but are involved in programming for the courses.

For skill upgrading courses, recruitment is termly and is done by individual centres. The courses are lowly priced and highly subsidized by industries. The courses are, therefore, very popular among Jua Kali employees.

### *Craft Apprenticeship Courses*

The following courses are presently being offered at the four DIT's Industrial Training Centres in Nairobi, Nakuru Kisumu and Mombasa under the craft apprenticeship training scheme :

1. Motor Vehicle Mechanic (MVM)
2. Motor Vehicle Electrician (MVE)
3. Panel Beater/Spray Painter (PAB)
4. Power Plant Mechanic (PPM)
5. Diesel Engine Mechanic (DEM)
6. Fitter General (FG)
7. Fitter Factory Maintenance (FFM)
8. Fitter Factor Services (FFS)
9. Turner (TUR)
10. Machinist-General (MAC)
11. Welder-General (WEL)
12. Plater Fabricator (PLF)
13. Pipe Fitter Welder (PFW)
14. Carpenter and Joiner (CAJ)
15. Masonry (MAS)
16. Plumber Pipe Fitter (PPF)

17. Painter Decorator (PAD)
18. Wood Working Machinist (WWM)
19. Electrical Fitter (ELF)
20. Electrical Installation (ELI)
21. Electronics Mechanic (ELM)
22. Refrigeration and Air Conditioning (RAC)
23. Spinning Chargehand
24. Textile Processing Chargehand

*Technician Training Programmes*

The following technician training programmes are available at the Kenya Textile Training Institute in the Directorate of Industrial Training :

1. Technician Apprentices in Garments
2. Technician Apprentices in Spinning
3. Technican Apprentices in Weaving
4. Technician Apprentices in Processing and Finishing
5. Technician Apprentices in Textile Laboratory Quality Control

Other Technican Apprentices courses are conducted at :

a) Kenya Polytechnic
b) Mombasa Polytechnic
c) Eldoret Polytechnic
d) Jomo Kenyatta University of Agriculture and Technology (Further details available from individual institutions on request).

Currently there is a general decline in the training of craft and technician cadres in all industries, the trend is in favour of training management cadres.

***Skill Upgrading***

The skill upgrading programmes at the DIT Centres are at present mainly directed towards giving artisans, from the industry and the Jua Kali sectors, the necessary skills up to the level of Grade One artisan.

The following skill up-grading courses are presently being offered at the DIT centres in Nairobi, Mombasa and Kisumu :

Motor vehicle mechanic, motor vehicle electrician panel beater and sprayer painter, Fitter (general), Turner, Welding (general), Electrical Installation, Electronic Mechanic, Horology (watch repair), Refrigeration and air conditioning, Masonry (general) Carpentry and Joinery, Plumber pipe fitter, painting and decoration, Tailoring Garment Making, Weaving, Spining, Dressmaking and Sheet metal.

These skill up-grading courses are standard but the centres also conduct tailor-made courses on request.

### *Supervisory and Management Training*

With the Industrial Training (Amendment) Act n° 11 of 1975, and in response to Kenyanization of managerial and professional jobs in the industry, there was a great need for training in the supervisory and management skills. Established public management institutions are few to meet this demand, and hence the emergene of private management firms have grown considerably.

The quality of staff and resources in these private firms have tended to fall and some firms have turned management training into commercial ventures.

The Directorate of Industrial Training and the Management Supervisory Committee have been and continue to monitor the quality of these management firms with the view to de-registering those that do not have the capability to train and advising the remaining ones on the basis ethics of training. The committee reserves the right to register or deregister a consultancy firm.

It is important that employers safeguard themselves against sub-standard training, which would eventually lead to a wastage of the Industrial Training Levy funds if personnel trained cannot perform work to the standard expected by employers.

All employers, therefore, ensure that they choose training consulting firms which will deliver real and measurable training before they apply for DIT approval for training. Should an employer feel that the training offered by a particular consultancy firm is inadequate or sub-standard, he/she informs the DIT for corrective action to be taken. This safeguard also applies to all types of DIT approved trainers at all levels

## LEGISLATION AND MANAGEMENT OF TECHNICAL AND VOCATIONAL EDUCATION

The Chapter 211 of the Laws of Kenya empowers the Minister responsible for Education and Training to promote education and training through the Education Act of 1968, Revised in 1980.

Section 3(1) of the Act states that it is the duty of the Minister to promote the education of the people and the progressive development of institutions devoted to the promotion of such education, and to secure the effective cooperation, under his general diretion or control, of all public bodies concerned with education in carrying out the National Policy for Education.

The Presidential Circular n° 1 of 1988 dated 24 March 1988, created the Ministry for Technical Training and Applied Technology to be responsible for Technical Education and Training Policy.

It ensures that training is geared towards national goals and that standards are upheld by issuing policy guidelines. To assist Ministry of Technical Training and Applied Technology in formulating policy guidelines there are two main committees namely :

a) The inter-ministerial consultative committee chaired by the Minister responsibile for Technical Training ;

b) The Technical Education Programme (TEP) Steering Committee, chaired by the Director of Technical Training.

The Committee in addition to formulating training policy guidelines develop effective liaison machinery between Government Ministries and relevant agencies on training of appropriate technical manpower.

The development of Technical and Vocational Education Programmes comes as a result of surveys, needs assessment through various organisations and institutions. These include :

a) The National Industrial Training Council which is a tripartite body under the Industrial Training Act Cap 237 in the Laws of kenya. The Council is charged with the responsiblity to improve quality and efficiency of training personnel engaged in industry to ensure an adequate supply of properly trainned manpower at all levels and to share the cost of training among employers .

b) Government Ministries : the Ministry of Manpower Development and Employment provides information on areas requiring training manpower.

c) Non-governmental organisations (NGOs) provide information related to training needs especially of private sector of the economy.

d) Training institutions provide information about existing programmes and through industrial liaison, propose new training programmes.

The institutions play a major role in the improvement of training through feedback on strengths and weaknesses of ongoing programmes. They also collaborate with industry through in-plant training.

### *Curriculum Development*

The Kenya Institute of Education develops curricula and curricular support material. As curriculum development is a team activity, the institute has adopted a participatory model which involves planners, implementers and other interested parties. The participants are appointed into subject panels and the Academic Board. Industries have also been involved in curriculum development.

### *Implementation*

Implementation is a crucial aspect of curriculum development in the achievement of established objectives. It involves the operationalisation of plans and strategies through adequate provisions of necessary resources which include equipment and facilities among others.

### a) *Management of Technical and Vocational Training Institutions*

The Technical and Vocational Institutions are managed through Boards of Governors or Management Committees. To enhance cooperation between institutions and the consumers of their products, the membership of such boards comprise industries, representatives of the community, government bodies and distinguished educators and trainers.

### b) *Training*

Experts from industry participate in actual training as visiting lecturers, guest speakers and resource personnel in seminars.

The 8-4-4 system of education emphasises practical aspects of training and includes mandatory industrial attachment at all levels. The duration is three (3) months for the artisan, nine (9) months each for the craft and technician levels, and six (6) months for technologists.

To this end each institution appoints a member of staff to liaise with industries in the placement, supervision and assessment of trainees while undergoing industrial attachment.

### c) *Provision of Equipment and Facilities*

The provision of equipment and facilities for technical and vocational training starts from prescribed lists of minimum equipment and facilities drawn for each developed course session. The MTTAT ascertain that each institute has adequate facilities before mounting a course.

The Government is usually the major contributor towards the provision of capital equipment and facilities from its own sources or through foreign aid. The community also plays a role in the provision of some facilities through self-help projects.

It is encouraging to note that some industries donate training materials to institutions from time to time.

### d) *Sponsorship*

As a result of increased enrollment in technical and vocational training institutions, the majority of students are self-sponsored. The rest are sponsored by industries and other organisations. This is in form of industries sponsoring their employees to training institutions and/or contributing towards bursary schemes and scholarships.

### *Informal Sector Training*

Until recently very little was known about apprenticeship and skill acquisition in the informal sector. The following account is based upon the information summarized in Walsh (1991) and the report of the ILO/SDSR survey (1991) of apprenticeship in Mombasa.

Informal sector training or apprenticeship in Kenya is not well defined. Its boundaries are vague, and it blends imperceptiblility into on-the-job training of unpaid or low-paid workers. Nonetheless, it is not difficult to recognize apprenticeship in a number of forms ranging from the embryonic to the more fully developed, according to location and type of enterprise.

The reason for this lack of definition is that recruitment to employment and skill acquisition in the informal sector remains very much embedded in and dependent upon existing social networks and obligations. A significant proportion of apprentices are related to or have some other social ties with their employers (and trainers), and more often than not they are members of the same community. Generally speaking, the role played by such ties declines in importance as the urban informal sector becomes more developed and entrepreneurs have more opportunity to free themselves from traditional obligations. Even in nairobi, where the informal sector is most fully developed, the recruitment of trainees is still far from being determined primarily by market forces.

As a result informal sector training is only begining to develop the features which are associated with apprenticeship as a fully-fledged institution. The majority of entrepreneurs do not charge fees for training their apprentices, neither do they offer them written contracts. In the many cases where there is not a verbal agreement, existing social ties between the entrepreneurs and their trainees are considered sufficient to cover their mutual obligations and risks. It should be emphasized that practice varies considerably between different types of activity as well as by location. In general it can be said that apprenticeship is more formalized in the more technical trades like motor vehicle repair, while it is most difficult to distinguish from forms of low unpaid labour in low skill activities like the sale of cooked food and beverages in roadside kiosks.

Despite its relative lack of formalization, informal sector training is by no means a marginal activity. All the available evidence indicates that it plays a very important role in the informal sector as well as in the wider economy. It does so by absorbing and training a significant and increasing number of the unemployed, and in some cases even preparing them for employment in the formal sector. One rough estimate for 1989 suggests that there were between 45,000 and 90,000 or even more trainees in the informal sector nationwide (including only off-farm employment while excluding those in trading activities). Elsewhere it has been estimated that the informal sector produced just over 130,000 trained apprentices during the twelve months ending in July/August 1990 (Yambo 1991).

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The most conservative of these estimates, 45,000 trainees, exceeds the more recent figures for total Youth Polytechnic enrollment. The higher estimates suggest that the informal sector produces considerably more trainees than all of the formal training institutions put together. Moreover, this is achieved at just a fraction of the cost, and none at all to public funds.

### *Relevance to the Informal Sector*

There can be no doubt that the introduction of the 8-4-4 system, followed by the creation of a ministry charged with co-ordination of previously disparate programmes of technical training as well as with responsibility for Jua Kali development, has helped focus attention on the needs and potential of the informal sector to an extent which had never been done before.

Data from the ILO/SDSR study (1991) of apprenticeship and skill acquisition indicate that formal eduation is a significant component in the training of informal sector entrepreneurs and employees. By far the majority of employees are educated, many of them beyond primary school, while their employers (the entrepreneurs) are noticeably better educated on average, suggesting that educational level is an important factor in preparation for self-employment.

The creation of the MTTAT in 1988 and the explicit inclusion of the Juan Kali or productive informal sector in its portfolio must be recognized as a major step in increasing the relevance of formal training. For the first time technical and vocational training are the primary responsibility of a single ministry, which, moreover, is charged with the development of programmes of assistance for the informal sector.

The existing public training institutions were established specificially to train for employment and further training. It should be noted that at that time there was no division between the formal and informal sector. The Youth Polytechnic were however specifically established to train many school leavers for self-reliance.

The middle level training institutions, including the TTIs, ITs, NIVCTCs and NPs admit more of secondary school leavers (close to 18,000 in 1990) and the products of these institutions are employed in both informal and in formal sectors of the economy.

### *The Training Programmes for Informal Sector*

These are the programmes targeted to those who have indicated a strong desire or commitment to embark on business life. Specifically intended to develop enterprise discipline and to provide skills, knowledge and information related to specific areas of technical business and management skills. To achieve this goal the following strategies are being put in place among others.

### *Utilization of the Formal Instituions for Jua Kali Sector*

The existing technical institutions have superior facilities than those used in the formal sector. The institutions would conduct alongside the formal programmes, through appropriate arrangements and flexible time-tabling part-time classes, evening and holiday courses etc. These arrangements provide time for utilization of institutional facilities for such programmes.

### *Training Clinics*

The majority of the Jua Kali artisans are in rural areas and small market centers throughout the country. Access to training will require them to make arrangements to travel away from their homes. Some areas have no adequate infrastructure to facilitate the training. To provide access to enable may trainees to attend business clinics at their working places, mobile training workshops are being established to provide the training at the artisans working places.

### *The Training Vouchers Programme*

The informal sector artisans depend on the small savings from their income generating activities for their basic needs. Therefore the savings are not enough to support their training needs required in order to improve their business skills.

The Training Voucher Programme Fund being established will support the financing of a demand-driven voucher program to apply for short term skill upgrading courses and enterprise based attachments to benefit the entrepreneurs and artisans. The training services will be selected by the beneficiairies themselves Associations members (individuals or groups) will purchase the skill training in demand wherever available.

### *Entrepreneurship Education*

In recent years, the Kenyan Government has been greatly concerned with, and addressed itself to, the unemployment problem that has continued to face the country since independence due to :

a) high rate population growth ;

b) rapidly increasing youth enrollment in the education system at the various cycles.

The economic growth has not matched these two factors and, therefore, enough employment opportunities have not been created. The government in its efforts to combat the unemployment problem has taken the following measures :

a) Recognized the dignity of labour and, thereby vocationalized the entire system of education. The system focus is to make graduates of education and training self reliant.

b) Recognized the important role that vocational and technial training play in producing graduates who would involve themselves in self employment activities.

c) Recognized the great role that the small enterprises and Jua Kali enterprises within the Jau Kali Sectors could play in creating employment opportunities.

Hence as stated earlier the Government on March 24 1988, established the Ministry of Technical Training and Applied Technology with the following two main portfolios :

a) Vocational and technical training

b) Jual Kali Development Programme

On the onset the MRTTT recognized that skill training alone cannot make an enterpreneur. Thus directed that entrepreneurship education be taught at all levels of vocational and technical training.

Enterpreneurship education is a new concept in Kenya, and, therefore teaching materials and qualified teachers were to be addressed.

The Government set up a project which funded the activities to institutionalize the concept in 18 July 1990. To date the entrepreneurship education curriculum and support materials have been developed and are being used at various levels of the technical and vocational training programmes.

The attempt to increase the self employment opportunities and capacities is based on the premise that the abundant latent entrepreneurial potential can be stimulated through training, exposure and awareness. The training institutions have to collaborate with both the external and internal environments in order to realize the training, exposure and awareness activities that can enable positive development of entrepreneurial attitudes and skills among youths.

To this end the MRTTT has taken the following measures to provide trainers in the area of entrepreneurship.

### *Training of Teachers of Entrepreneurship Education*

i) The Curriculum for technical teacher education incorporates a component of entrepreneurship Education. The training leads to award of Diploma in Technical Teacher Education which incorporates entrepreneurship as a teaching subject.

ii) A Master of Science Course in Entrepreneurship Education has also been put in place in one of the local universities, the Jomo Kenyatta University of Agriculture and Technology.

iii) The teaching materials in form of instructors Guides, Trainees and Trainers manuals ; Case Studies have been developed to support the teaching of the subject for the following general themes :

- Entrepreneurship and self-employment

- Entrepreneurship opportunities
- Entrepreneurship awareness
- Entrepreneurship motivation
- Entrepreneurship competencies
- Entrepreneurship Management

iv) Establishment of Small Business Centres (SBCs).

The SBC is a unit therefore within a training institution which facilitates the development of small and Jua Kali enterprises and promotes an entrepreneurial culture within the institution and the community. In this context it is similar to institutional academic departments but has to be seen to be flexible enough in its activities in order to interact with the business and industrial communities. The SBCs are therefore seen as practical interfaces between the training institutions and the world of work.

The various target groups of the SBCs include :

- Trainees
- Ex-trainees
- Potential entrepreneurs from community
- Entrepreneurs committee to start up
- Practicing entrepreneurs
- Employees in the public and private sectors and
- Staff of technical training institutions.

## HARMONIZATION OF CURRICULA, EXAMINATIONS AND CERTIFICATION

In accordance with the existing legislation, only the Kenya Accountants and Secretarial National Examinations Board, the Director of Education, the Director of Technical Training, the Director of Industrial Training, the Kenya National Examination council and the universities are empowered to issue certificates.

Inspite of this fact, many government departments companies and private institutions still develop private curricula and issue their certificates and diplomas. There is thus a multiplicity of certificates some of which have very limited recognition within the country. This state of affairs seriously affects the certificate holders not to mention the community which is expected to see the holder gainfully employed.

It has therefore become necessary to harmonize and rationalize training programmes so as to :

i) streamline training programmes by eliminating/reducing duplication in order to make training efficient and cost effective

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ii) increase training opportunities through maximum utilization of training resources. This will eventually lead to consolidation and expansion of training facilities.

iii) assist in maintaining comparable standards of performance, accuracy in determining job levels and create linkages which allow flexibility for both vertical and horizontal mobility of trainees.

*Criteria for Harmonization*

Harmonization of training programs should be based on :

i) the entry behaviour of candidates
ii) Curriculum Course duration, Examination and Certification
iii) training Equipment and facilities
iv) Training of Trainers Programmes.

*Government Efforts in Harmonization*

In a deliberate attempt to address these problems, the Ministry of Technical Training and Applied Technology held a seminar on Harmonization and Rationalization of curricula, examinations and certification for technical and vocational training at the Mombasa Beach Hotel from 21st-25th November 1988. The seminar was attended by all the interested parties in the task of technical and vocational training. The seminar recommended the development of a harmonized and rationalized training system which permits a free mobility of trainees within and across the formal, non-formal and informal training systems so that any trainee can progress to any level of competence depending on his ability. A harmonized Technical and Vocational Training Certification level is shown in figure 1.

Successful attempts have been made in the implementation of the recommendation of the seminar. These were reviewed at a follow up seminar held from 13th-15th October 1992 at the White sands Hotel Mombasa. The progress reports indicate that the harmonized curricula have been developed up to Technical Diploma level.

## COOPERATION BETWEEN TECHNICAL TRAINING INSTITUTIONS AND INDUSTRIES

Employers expect Technical and Vocational Training Institutes to produce graduates who possess adequate skill proficiency to achieve high productivity levels. Indeed they expect our training programmes to meet the skill requirements of the world of work. It is vital for the institutions to ensure that the industry gets what it expects. Their relationship is therefore, that of mutual benefit.

Towards this end, co-operation between them is so important that it cannot just be assumed but serious efforts should be made to promote and improve it.

Currently there are a number of areas where the institutions co-operate with the private sector.

### *Curriculum Development*

There is already a well established mechanism for co-operation between the Government and private sector in the area of curriculum development. This mechanism enables representatives of the industry to sit in the various Kenya Institutes of Education Curriculum development fora when Technical syllabus are being developed. Such representation occurs at all levels starting from subjects panels to course panels as well as in the Academic Board and KIE panel. The process ensures that the needs and aspirations of the industry are accommodated and reflected in each technical syllabus.

### *Administration of the Industrial Act of 1971*

The Government also cooperates with the private sector in the administration of the Industrial Training Act of 1971 which was amended in 1975 to incorporate the National Industrial Council. Besides the council, the Act provides for the creation of training committees in industry by industry basis so as to facilitate needs and skills required by each industrial segment. The information is used to draw up training schedules for artisans, craftsmen, technicians and general skill improvement courses for indentured learners and supervisors.

### *Industrial Attachment*

Another area of cooperation which is critical for the development of technically skilled manpower is the area of industrial attachment. In the past a number of companies and other private organisations have made it possible for students in the Polytechnics and other Technical Training Institutions to acquire vital experiene during industrial attachment. This kind of exposure enables trainees to understand and appreciate the complete demands of the world of work in a realistic job setting.

### *Strengthening areas of cooperation*

To underscore the existing areas of cooperation outlined above does not mean that there is no scope for further cooperation. Instead, it means that the links already established should be strengthened and expanded. In this regard, there is need to strengthen the representation of industry in boards of governors as well as in course design and curriculum development at Kenya Institute of Education. Again, further links should be developed so as to enable experienced individuals to serve as part-time lecturers in the Technical Training Institutions.

Similarly, teachers, Administrators, Instructors and Technicians handling training programmes in Technical Training Institutions should be given exposure in future by being allowed to spend some time in industry in order to develop a feel for what their trainees undergo. This kind of exposure will enable trainers to appraise their skill and monitor the trends in the industry.

The development of regular contracts between the public sector and private industry will be greatly hastened through the planned establishment of industrial liaison office within the Ministry. Such an office will facilitate formal contacts between technical training institutions and the private sector. The office would collect and disseminate information about student placements in attachment and also monitor employment opportunities in the private sector in an effort to improve the quality of technical training in the country.

The industrial liaison office would also be in a position to identify and address various constraints hindering effective cooperation between technical training institutions and industry. Some of the constraints which have been identified in the past include :

a) Lack of appropriate mechanism of enabling institutions to find suitable industrial attachment for their students.

b) Lack of appropriate mechanisms to indemnify trainees against accidents while in training.

c) Lack of appropriate communication channels to facilitate awareness by industry regarding the needs of training institutes in respect of using equipment and facilities.

d) Lack of clear policies on how the co-operation between training institutions can be intensified.

e) Skepticism or reluctance on the part of industry to disclose their detailed working programmes and technology to outsiders who are only temporarily attached to the companies.

f) Lack of awareness on the part of industry as to the capacity of technical training institutions to conduct short term training research and curriculum.

## MISMATCH BETWEEN TVE PROGRAMMES AND SKILL NEEDS OF INDUSTRIES

### *Relevance in TVE*

In recent years the issue of the relationship between Technical Education and productivity within the economy has become more urgent. This has come about as a result of the realization that many graduates of our Technical Training Institutions have neither found employment in the formal sector nor started their own businesses. It is also claimed that those employed tend to be more theoretical than practical.

The above phenomenon has raised the question as to whether it is desirable to have identical or similar courses in all our Technical Training Institutions. This question is based on the argument that, since different parts of Kenya may have different types of economic activities, local institutions should have flexibility to mount different programmes to serve the various economic needs. Proponents of this approach call for direct relationship or linkage between the institutions and the communities in which they are operating.

For such a link to be established, it is necessary to have adequate labour market information. Unfortunately, no comprehensive needs assessments have even been undertaken ; the courses being offered currently were mainly designed by curriculum developers and subject panels with no regard to prevailing economic needs.

Although the panels include people from industry, these are mainly people who are not conversant with the communities around the institutions. This makes the issue of needs assessment critical so that courses are matched with local community needs.

Apart from the question of relevance, there is need to create possibilities for those entering training at the lowest levels to develop themselves to the highest available level.

While this does not necessarily contradict the need for relevane it can distort the process of creating the necessary linkage between training and community needs. This happens when curriculum planners become more certificate oriented than economic demand driven.

### *Training for the Economy*

In order to train for the economy, there is need to strike a balance between economic needs and academic skills. This balance has always been recognised and accepted by our curriculum planners. It is for this reason that the following weighting between theory and practice was recommended for the various courses.

| Course | Theory(%) | Practical (%) |
|---|---|---|
| Artisan | 10 | 90 |
| Craft | 20 | 80 |
| Technician | 40 | 60 |
| Diploma | 40 | 60 |
| Higher diploma | 70 | 30 |

Having determined this weighting, what needs to be done is to decide on the following:

a) The relationship between course content and the community/industrial activities of the area.

b) The most appropraite process of industrial attachment for the various levels of training.

c) The most appropriate system of evaluating the trainees' learning process when on attachment.

Once the points a-c) above are determined, it will then be possible to design an appropriate National Skills Training Strategy which has the desirable impact on the country's economy

Such a strategy must be seen in both long and short term perspectives. This is necessary given the long process through which curricula for the various courses are conceived, planned, developed and implemented.

### *The Long Term Perspective*

The long term perspective is to design a system that allows for constant review of courses so as to accommodate the changing technological and economic situations in the country. In this system there will be need for periodical needs assessment so as to facilitate the review of programmes, courses contents, structure and the delivery methods.

When designing this long term National Skills Training Strategy for our institutions, it will also be necessary to establish links between the various Technical Training Institutions e.g. the DIT Industrial Training Centers and the Institutes of Technology (IOTs), Technical Training Institutes (TTIs) and other public, private or NGO run institutions, such as the Christian Industrial Training Centres.

### *The Short Term Perspective*

In the short run, the gap between formal training institutions and prevalent economic needs should be bridged through mounting non-certificate training courses geared at imparting or upgrading the productive skills. These courses should be based on the needs identified. For this reason, the training needs must be established through either needs assessments carried out among the industries/the community or requests from those who need the skills.

The current Jua Kali skills Upgrading courses are part of the effort to bridge the gap between skills provided in formal training institutions and productive skills. Since Kenya has a Tripartite System in which Employers, Workers' Unions and the Government come together to discuss industrial training, the forum already exists for the new strategy to be deliberated upon.

Currently Jua Kali Associations, both at National and Local levels, are already collaborating with the Ministry in discussing the informal sector needs. For this reason a mechanism has already been established to discuss training needs for the informal sector.

### *Training Needs Assessment*

It has been decided that both the long term and short term perspectives should be pursued. The short term perspective of this problem is now being pursued through the development of short courses at the Kenya Institute of Education. The courses are developed upon request from various organisations. The courses are to be offered on flexible time table arrangements at several Technical Training Institution. So far Mombasa Polytechnic, Kenya polytechnic and Mombasa Industrial Training Center are offering such courses to Informal Sector Artisans.

The long term perspetive is also being implemented under the auspices of National Industrial Training Council where a training needs assessment in industry and institutional capacity is planned.

## WAYS TO ACHIEVE DESIRED FUTURE SITUATION

In order to achieve the desired future situation, the Government has identified the following existing problems and possible solutions.

### *Unemployment*

Kenya's population is projected to be over 30 million people by the year 2,000. By that time the country will need to have a workforce of 14 million people. The government will therefore be expected to create 14 million jobs in order to solve the problem of unemployment. It is estimated that the formal sector of the economy will have created only 500,000 jobs by that time.

The Government has recognized the potential role of the informal sector's contribution towards creation of additional jobs.

Included in the projected unemployment figures are the school leavers. the government has therefore introduced entrepreneurship education programmes at all eds of technical and vocational training as fully discussed undr Informal Sector Training section of the document.

### *Lack of Resources*

Technical Training Programmes stands out as one of the major strategies which the Government has instituted to address the problems of unemployment, productivity, economic growth, skilled manpower development and industrial take-off.

Currently, the Ministry has training opportunities in 600 Youth Polytechnics, 19 Technical Training Institutes, 17 Institutes of Technology, 3 National Polytechnic and 1 Technical Teachers College. The student population in the above mentioned institutions numbers over 60,000. With restricted intake of university students in our five state universities to only 10,000 students per year, coupled with a limited number of Form one places in our secondary schools, the bulk of those students who leave schools annually, i.e. 140,000 from secondary schools and 400,000 from primary schools, will increasingly seek admission in technical training institution. It is therefore, important that these institutions are consolidated and expanded to enable them to provide quality eduation and training to our young people in line with 8-4-4 system of education.

## SOURCES OF FUNDING FOR TECHNICAL TRAINING INSTITUTIONS

The Government has been and continues to be principal source of funding for not only the education programmes but also training programmes which in this case includes technical training. In its commitment to provide employable skills and to supply the required balance of technical manpower in the correct ratio of 1 technologist/5 technicians, 30 craftsmen/1 artisan. The Government has made increasing financial allocations over the years to the extension programmes aimed at increasing the number of skilled manpower for both the public and the private sectors. However, the Government support must be seen in the light of the economic performane of the country and its other competing priorities and these have made it difficult to allocate adequate funds to education and training programmes. As we are all aware, Non-Governmental Organisations have made significant contributions in funding and erecting both the infrastructure and meeting the running costs to a large number of private institutions. The funding of education and training institutions is therefore a partnership between Government, the local communities who in this case have been responsible for the construction of a sizable portion of the physical facilities in our institutions as well as that of the voluntary bodies or Non-Governmental Organisations. It must also be noted with gratitude that donors have made a very substantial contribution to the development of Technical Training Programmes.

Since the attainment of independence in 1963, the Government has constantly reviewed the education and training system in an effort to satisfy the aspirations of the trainees as well as the wider interests of the National development.

The high rate of unemployment in recent times has been a prime mover in generating greater vigor in vocational education and this has necessitated greater reforms, hence greater needs in terms of funds for instance, when focusing on youth unemployment, work considerations and provision of relevant school and training curricula have taken a priority in the funding of the whole education and training process.

A major structural adjustment factor is the 8-4-4 system with a heavier dose of technical education in the last two years of primary and a little more in post-primary in order to lay a foundation for the acquisition of technical or employment skills.

This National adjustment programme has necessitated a greater expansion and coversion of the existing facilities, for instance the former Technical Secondary Schools have been required to convert fully to technical institutes in order to serve this new purpose and avoid idle capacities.

In addition, equipment, teaching materials and greater numbers of qualified teachers have placed yet a greater financial demand on the main source, the Government. This has necessitated a policy of cost-sharing expressly outlined by the Sessional Paper No 6 of 1988, and Kamunge Report on manpower Training for Next Decade and Beyond. The purpose of cost-sharing between the Government, the communities, parents and the beneficiaries of education and training is to raise additional funds accelerate the expansion of education and training opportunities and therefore increase access to education and training at all levels and to ensure their quality and relevance.

The contribution made by the donors towards the funding of our education and training objectives is substantial. This has comprised the provision of physical facilities, equipment and tools, staff development and training materials, even supervisory services in terms of evaluation and accounting.

The efforts outlined above have not adequately satisfied the need because the magnitude of the demand and pressure for education and training is far greater than the resources so far within our reach. The changing trends in the world economies have been a major drawback towards achieving our earlier set goals because the costs in funding the existing programmes have risen by leaps and bounds.

The Ministry of Research, Technical training and Technology is in the process of establishing production units and has already incorporated entrepreneurship education into our curriculum in order to create a business flare in not only within the institutions but also in our graduates. The aim is to stimulate a multiplier effect aimed at reducing the unemployment of the youth because thus armed, they will be able to create self-employment enterprises. Regarding the Institutions, the production units are intended to be small businesses autonomous in the operational activities but proceeds from them is to be channeled back into the recurrent expenditures of the institutions.

There has been an enormous increase in education expenditure by the government, communities, and parents to finance the growing demand for more education and training opportunities.

The current efforts to increase training opportunities will call for even greater expenditure on technical teachers, physical facilities, training facilities and equipment as well as boarding expenses.

In the Sessional Paper n° 1 of 1986 on Economic Management for Renewed Growth, the Government reduced expenditure on formal education and training to about 30% of the recurrent budget and introduced the cost-sharing policy calling for the use of more local materials, while at the same time maintaining the growth, quality and relevance of education and training.

This places an even greater financial burden on the communities and parents for the education and training of their children. The total effect of this has been a reduction on student enrollment because a large number of parents cannot afford the kind of fees the institutions have been forced to change by the prevailing circumstances.

If we are to achieve the noble objectives of 8-4-4 system and particularly that of absorbing the ever increasing numbers of the graduates of the primary and secondary cycles of this system in order to equip them with skills for salaried employment or self-employment, a strategy to alleviate this bottleneck has to be found.

From the foregoing it can be seen that there is a financial predicament. The Government is over stretched. The parents, through the cost sharing policy seem to be over-burdened already and any attempt to disproportionately increase their share of the cost of training will have the adverse effect of reducing participants.

The institutions are thus encouraged to raise funds through establishing units, approaching funding agencies and mounting tailor made courses to meet the needs of customers at economic costs.

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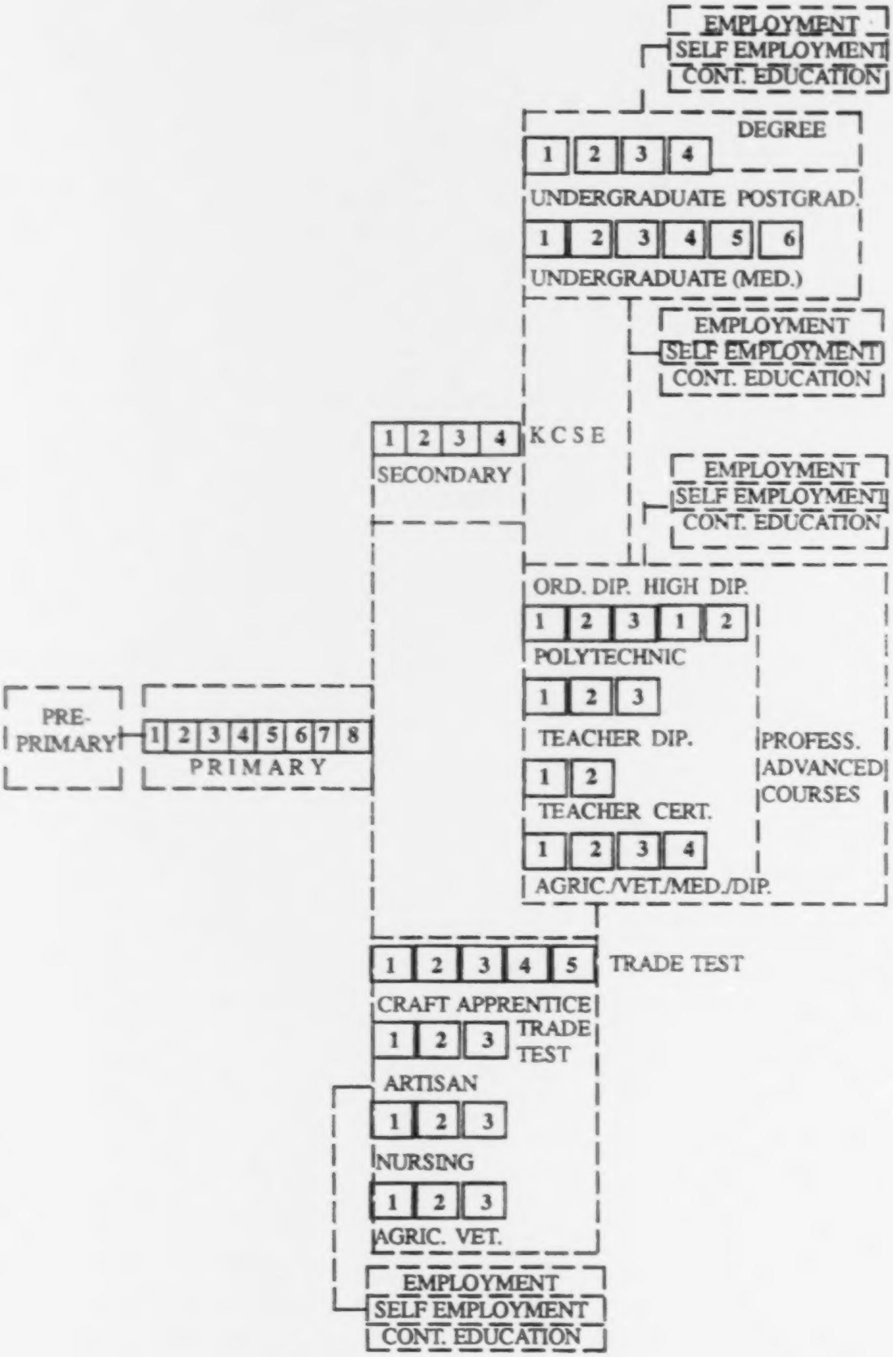
# STRUCTURE OF EDUCATION IN KENYA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EMPLOYMENT
SELF EMPLOYMENT
CONT. EDUCATION
ORD. DIP. HIGH DIP.
1 2 3 1 2
POLYTECHNIC
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TEACHER DIP.
PROFESS. ADVANCED COURSES
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TEACHER CERT.
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AGRIC./VET./MED./DIP.
PRE-PRIMARY
1 2 3 4 5 6 7 8
PRIMARY
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TRADE TEST
CRAFT APPRENTICE
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TRADE TEST
ARTISAN
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NURSING
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AGRIC. VET.
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CONT. EDUCATION

# CHAPTER 6

# TECHNICAL AND VOCATIONAL EDUCATION IN MADAGASCAR

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## POLITICAL AND SOCIO-ECONOMIC CONTEXT

Madagascar has a population of about 12 millions inhabitants with a growth rate of about 3%. The revenue per inhabitant was at US $250 in 1989 but this has revenue tended to reduce progressively in recent years.

In effect, the Malagassy Government is adopting the economic policy of a floating currency rate. Thus, the French Franc is equivalent to 700 Malagassy Francs officially.

After the political and social events of 1991 and 1992 which led to the end of the second Republic, Madagascar had for 2 years a transitional Government.

The institution of the 3rd Republic is currently being implemented:

- Constitution was voted under Universal male suffrage.
- The president of the Republic was elected under Universal male suffrage.
- The National Assembly was also elected under Universal male suffrage.
- The Prime Minister, head of the Government was elected by the National Assembly.
- The Government was constituted by the Prime Minister. Senior Government Officials were nominated by a Council of ministers presided over by the President of the Republic.

What remains to be put in place are the decentralized territorial institutions and the senate in the course of the year 1994/1995, so that Madagascar really becomes a state, governed by its own constitution, and can work for the social economic and cultural development of its people, within the international community.

The programmes of political authorities of the Country in response to the main aspirations of the populace, were reviewed in August 1993, in the framework of Plan, Reliance and Socio-Economic Development "PREDES".

This document "defines in its major themes, strengths and weakness of the Country, and the actual aspirations of the population, the objectives and the priority areas of the future development of the Country. It constitutes a framework which directs the course of action".

The basic principles which, underline the PREDES are :

- The proposition of a regional and national development by wider integration and better mobilization of the population in development work.
- The promotion of concurrence by the creation of a global environment, favourable to liberalization of all initiatives.

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- The liberalization and the progressive privatization of the economy and the disengagement of the state from the productive sectors.

The main themes of the Government Programme and the actions which drive them were recognized in the programme discussed by the Prime Minister on the 24th of August 1993 before the National Assembly and was centered around the following main areas:

- Effective participation of the population in the expression of their needs and their expectations at the local level : district, sub. division, communes.
- Sensitizing, motivating, dynamising the populations to promote private initiative and the creation of activities generating resources and wealth.
- Knowledge and management of needs of the population in the human area as well as in the economic areas (areas of activities, support creating activities, financing, etc.).
- Effective decentralizing and adapting of local needs, in areas of structural services and support to regional economic development in particular concerning the improvement of professional competences of the populace and the support for creating activities with the view to minimising rural-urban population drifts, by providing resources and economic capacities which will facilitate access to a better social well being.

For this, the Government of the Republic of Madagascar must have a global rational approach to economic development. One of the most important development factors for a country, is an effective and coherent plan of action for national technical and vocational education, for the preparation and the training of human resources in the various sectors of economic activity.

For Technical and Vocational Education in particular, the address of the Prime Minister, and Head of Government, on August 24th 1993 to the National Assembly clearly indicates that "Technical and Vocational Education must be tied to the promotion of our economy for it has a mission to satisfy the short, medium and long term need for qualified people in the enterprises and even to create economic operators". In this sense, the Technical and Vocational schools are called upon to act on two principal points :

- Firstly, to satisfy the demands for training and knowledge expressed both by inexperienced and experienced workers on situations of under employment or unemployment.
- Then, satisfy the demands, qualitatively and quantitatively, of qualified manpower which are permanently expressed in the labor market, and notably, those of the enterprises.

To do this, it is necessary to take the following measures:

1. Involve enterprises in all the areas of Technical and Vocational Education with the view to adequate training for employment, and the participation of enterprises.

2. Encourage the cooperation of Technical and vocational institutions in view of their administrative and financial autonomy.
3. Rehabilitate the equipment and the infrastructure of the big technical schools in Madagascar.
4. Geographically spread the higher institutes of technology at the regional level.
5. Re-open centers of initial and continuous vocational training and for all the branches of activities of the region.
6. Create higher schools of technical education. (ENSET)
7. Create centers of vocational orientation as from the 4th year of secondary school.

Moreover, the improvement of purchasing power of workers by the indispensable increase in national productivity is necessary for the re-establishment of micro-economic equilibrium. Technical and Vocational Education will enhance this increase in productivity.

This new direction in the field of technical and vocational education will have a positive impact on social peace, reduction of unemployment and problems caused by juvenile delinquency, success of effective decentralization, and better division of resources and wealth.

## THE SUB-SECTOR OF TECHNICAL AND VOCATIONAL EDUCATION

### *Role of Management in Technical and Vocational Education*

Madagascar must have a national Plan of action on Technical and Vocational Education which is effective and coherent to support its economic development.

Thus the creation of the General Delegation of the Government for Technical and Vocational Education, (GGDTVE) placed directly under the Prime Minister, Head of Government (Article Decree No 93-713 of oct. 20, 1993). This organization directs the implementation of the projects for reinforcing Technical and Vocational Education.

GGDTVE has as a mission to prepare and implement State policies on Technical and Vocational Education and especially to ensure the adequacy of training and employment for the short, medium and long term needs for the economic and social development of the Country at the regional and national levels.

In this regards, GGDTVE and all its branches must be associated with the professional world of enterprise in the explanation and the implementation of Government policies in the field of Technical and Vocational Education.

GGDTVE is controlled by a Government General Delegate and includes a National Council for Technical and Vocational Education, which assures the coordination and integration of activities of establishments for Technical and Vocational Education, whether they are public, parapublic, or private in relation to the national policies on Technical and Vocational Education and employment. Three types of schools exist which participate in Technical and Vocational Education at this level in Madagascar:

- *The public schools* responsible to the Minister of National Education (ex MIP) and which cover more than 50% of the training of the sector.
- *The schools outside the Ministry* of National Education which have often been created at the initiative of the different ministerial or parapublic departments, with the hope of satisfying the needs for training their own personnel.
- *Private schools* which include all schools, such as the Non Governmental types (NGO), the center for training of enterprises and profit oriented schools.

It is important to note that the problems of non adaptation of Technical and vocational Education to the economic needs in general and to industry in particular, come especially from the disparity of tutelage in the schools for Technical and Vocational Education. How could training programs of schools be coordinated when each ministry or enterprise of training or NGO manages its own policy ?

It is necessary to add to these the specific problems of the public schools in relation to the authority of the ministry of National Education (MNE). In fact, with the specific problems of public schools of general training, the MNE has always underestimated and neglected Technical and Vocational Training to the benefit of General Education.

Inspite of the creation of the Ministry of labor and Training (MEF), the delimitation of tutelage of schools was not well defined, notably the Directorate of Technical and vocational Education remained under the authority of the Ministry of National Education (ex MIP) and the Ministry of Labor and Training (ex MEF) did not seem to appreciate this.

Since October 20th 1993, the sub-sector concerned with the present project was placed under the tutelage of the Government General Delegation for Technical and Vocational Education (GGDTVE). Three types of schools participate in Technical and Vocational and Progressional Training :

- Public schools.
- Schools relevant to the various Technical Ministries;
- Schools with private status.

### *Public Schools of Technical and Vocational Education*

There are 63 schools distributed all over the Country, which have 8500 pupils and 1100 teachers. These schools, in the course of reorganization, are actually distributed in 3 categories which are :

- 18 TEFISO I : Post primary schools which take in youths of 16 years, holders of at least a primary school certificate, for 2-years specialized training essentially for the rural zones and the non structural sectors .
- 21 TEFISO II : Vocational schools which take in youths of 18 years, holders of the secondary school certificates and train them into vocational workers in two years.

- 9 Technical Schools : takes in holders with Secondary School certificates and offers : Courses leading to technical advanced level in 3 years which gives access into the Higher School of Engineering, (Polytechnic).
- 15 Technical Colleges (SAFMI), schools with limited size, which function as Technical High Schools, but which do not offer technician courses.

It is important to note that if the global structure of these schools seems logical, the objective assigned to the different levels of education are ambiguous and vague. In addition, the training of qualified and specialized workers is organized in a very fluid manner to be able to respond to the needs of the labor market. The teaching staff, the pedagogy material and the teaching contact hours are not sufficient to ensure good quality training.

### *The Schools under the Different Technical Ministries*

There is no other network for vocational training different from the one previously discussed, but however, we can note :

- Some youth training centers are run by the Ministry of Population and Youths.
- These training schools were created by the initiative of different technical ministries with the hope of satisfying their own needs in qualified manpower (it is in this light that JIRAMA, the National Society of Production and the Distribution of Electricity, has trained several electricians in its own centers of vocational training).

### *Schools with Private Status*

There exists a number of small technical schools which are dependent on the private sector or the NGOs. They are sited in different regions of the Country (especially in the urban centers) but the students are concentrated in Antananarivo. The quality of their training varies, most of them are commercial schools which train at the tertiary profession. Some of them, mostly mission Schools, offer short term practical experience for industrial, agricultural or public construction work.

Even if in general the capacity for involvement is limited and that they lack the means, most of the schools offer efficient training programs combined with practice adapted to the local needs, and employers generally do not hesitate to recruit their trainees. However, it is important to note that only a small number of the trainees are able to get the end of course certificate, because the tests organized by the MIP primarily check the theorical knowledge instead of the practical capacities.

### *Remarks*

A study of the employers has shown that within 31,000 enterprises in the formal sector, 1200 amongst them develop continuous training. A little more than 300 enterprises train their employers with courses developed outside their establishments.

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## POLICIES AND STRATEGIES OF THE GOVERNEMENT IN THE FIELD OF TECHNICAL AND VOCATIONAL EDUCATION IN ECONOMIC DEVELOPMENT AND PRIVATE INITIATIVES

The strategy of the Government towards the Structural Adjustment Programme (SAP) is the basis of a structural project known as the Technical and Vocational Educaion Reinforcement Project. Negotiated in Washington, it has been operational since July 15th 1993. This strategy aims at 3 objectives:

- Implementation of a national plan of action on technical and vocational education for the economic development, compatible to the policies of promotion of the private initiative and its effective decentralization.
- Effective involvement of the public sector and the professional world in the definition, orientation, realization and financing of Technical and Vocational Education.
- Mastering by area of expertise and specialty with compatibility to economic and regional development and the rational utilization of necessary resource. This strategy of the governmental program derived directly from fundamental options taken which are: the necessity to motivate, dynamise and make the population participate in all the areas of the implementation of profitable sustainable and private economic activities.
- It is necessary to give support to the population in the creation and the development of micro, small, and medium private activities in the fields of :
    - Technical and vocational related enterprises ;
    - Training entrepreneurship and the management of enterprises ;
    - Access to financial sources adapted to the needs of micro and small regional enterprises.
- It is necessary to create regional bases (platforms) for the conception and emulation with the view of sensitizing the populace, mobilizing and using all the resources available in a rational manner and creating between them synergies and complements.

Thus, national economic development necessitates a large participation of the nations active population in the system of economic production in the country for the promotion of private initiatives and the policy of efficient decentralization.

It is important to note that for efficient mastering of the production sector and for the strategic reason of participation of nationals in economic production operations, the Government encourages the implementation of micro, small and medium enterprises and industries.

Thus it is urgent and necessary to sensitise and train the citizens in the promotion of private initiatives. Youths should no longer be oriented towards civil service activities but be encouraged to choose between different activities in the production sector, which are :

- salaried employment activities necessary for the development of enterprises ;
- self employment activities specially in the field of agriculture and handicrafts ;
- enterpreneural activities with managers of micro, small, and medium enterprises or industries which are able to succeed, at the regional, national as well as the international economic level.

It is the responsibility of the General Delegation for Technical and Vocational Education to assure the execution of these employment policies, in particular, training of different categories of human resources for the different sectors of economic activities.

*Remark 1*

It is in those activities like the promotion of national entrepreneurship that foreign investors can efficiently collaborate towards the economic development in Madagascar, as they will find a reliable future and an environment which is favorable to investments.

*Remark 2*

Setting up a micro small or medium enterprise and/or industry requires among other things :

- That the entrepreneur be specially trained in the profession of the sector he will be working in.

(This is the technical and vocational education of the entrepreneur).

- That the entrepreneur can manage the enterprise and sell the products on the local, national and international market (this is again the technical and vocational education of the entrepreneur),
- That the entrepreneur can provide an appropriate plan and negotiate for a project. This is also the technical and vocational education of entrepreneur and the methodology of project control (MCP). This was taken into account when the project for supporting the creation of micro, small and medium enterprises *"Entreprendre à Madagascar"* was placed under the tutelage of the General Delegation of the Government, in charge of technical and vocational education.
- In view of all these, the problems to be solved by the Government are as follow :
    - How to recognize the expectations and difficulties of the regional population in creating decentralized economic activities?
    - How to provide dynamism and promote private initiatives in creating wealth at the regional level?

- How to improve the harmonization and better cooperation between the systems and the administrative structures which are involved in decentralised economic development?
- How to integrate the information and needs at the local level into a regional program of action on the one hand and into national approaches on the other hand
- How to set-up the bases:
    - for the populations activities (forums, consultations, etc) ;
    - for the identification and follow-up of needs of employment (Regional Employment Observatory) ;
    - for the evaluation of needs in training and retraining for technical and vocational improvement ;
    - for the evaluation of needs related to the availability and accessibility of financial sources specifically designed for regional development activities (guarantee funds, credit lines, funds for studies, etc.).
- How to present the needs which can not be satisfied by the available means at the regional level to the relevant technical ministries, the organizations in Madagascar and/or Funding Agencies and private funding sources, for funding ?

This set of problems must be tackled in a specific but coordinated manner in order to come to a globally coherent situation.

The administrative decentralization must be executed from the top. A similar approach should be adopted for all the regions of the country so as to avoid impartiality. This administrative decentralization must aim to render administrative decisions more transparent, but also and above all, support the regional economic and social development by creating conditions and legislation adapted to development needs.

The economic decentralization, starting with the creation of regional economic activities, must be executed from the basic level relying on the populace and the true economic potential that exist in each region. These needs expressed by the populace in the process of creation and development of micro and small economic activities are what will permit the authorities to create an administrative environment more adapted to the needs in national economic development.

With this new approach of the country, it is evident that the private sector must play a more and more important role in economic and regional development. Henceforth the private operators have the task to create economic activities capable of production for local and national markets but it is also with private operators that regional economic potentials can be mobilized and that available human capacities and competencies at the regional level can be exploited.

The present programme of the Government aims at solving the various problems raised by concentrating its efforts on the promotion and dynamising the private sector at the regional level on the one hand, improving the conditions of support, creating of regional economic activities on the other hand. These are directly linked to the most important mission of the GGDTVE, which is to prepare and train the human resources in the various activity sectors of the country and to ensure the relationship between training and employment according to the short, medium and long term needs for economic development at the national as well as regional level.

In the view of the problems raised, to ensure the execution and operation of the policy and strategy of the Government in technical and vocational education in national economic development, it is necessary to coordinate the actions of different projects under the tutelage of the GGDTVE in a Government programme named "National Programme for the Promotion of Private Initiative and *Regionally Integrated* Economic Development".

The Governmental programme is supported by several complementary sub-programmes:

- *Sub-programme 1:* Organization of regional discussions for the setting--up of an Integrated Program for Regional Economic Development and Private promotion.
- *Sub-programme 2 :* Setting-up and operating a service for employment and services at the regional and national level (Specific Convention, Government, World Bank, UNDP, ILO) under the PREFTEC.
- *Sub-programme 3 :* Setting-up of a reform program, for the adaptation and reinforcement of technical and vocational education (Specific Convention, Government, World Bank, FAC, UNDP, ILO, ONUD) under the PREFTEC.
- *Sub-program 4 :* Setting-up of national and regional structures for training and support for the creation and development of micro, small and medium enterprises *Entreprendre à Madagascar* (Convention, Government, UNDP, ILO and Government, UNDP, FENU, Guarantee Funds, Refinancement Line).
- *Sub-program 5 :* Setting-up National and Regional structures for the orientation, professional insertion and reinsertion, placement and follow-up of trainers (Convention under the PRP project: Government, World Bank, UNDP, ILO).

## NATIONAL PROGRAMME FOR TECHNICAL AND VOCATIONAL EDUCATION FOR ECONOMIC AND NATIONAL DEVELOPMENT

*SUB-PROGRAMME 1 : Organization of regional discussions for the setting-up of an integrated program for regional economic development and private promotion.*

The regional economic development within the policy for efficient decentralization, necessitates that each region engage in a true "Integrated Program for Regional Economic

Development (PCDER)" based on the explanation of economic resources and potential existing in the region.

Example : in the region of Fort-Dauphin

- Fishery sector (shrimps camaron)
- Mining sector (sapphire)
- Tourism sector (Hospitality)
- Agriculture sector;
- Handicrafts sector.

The goals of the sub-program are two fold :

- On the one hand, organize and promote discussions at the regional level and facilitate a basis for acknowledging the needs expressed in the region and transmiting them to the administrations concerned, decentralized territorial organisations, economic operators and development agents and support agencies (for organization) and funding agencies in order to progressively assist the implementation in each region of :
  * Regional enterprises (economic operations) who should exploit the resources and potential of the region in each economic sector and must be capable of succeeding at the economic level by generating products of quality that can be sold in the local, national and international markets;
  * Qualified man-power artisan workers, specialized workers, qualified employees (EQ), technicians and senior technicians, especially trained in the spirit of production in regional enterprises managed by nationals or foreign investors of the first zones;
  * Adequate infrastructures such as :
    - construction of roads and access roads
    - construction of houses.
  * Efficient fiscal and custom systems;
  * Efficient security systems
  * Adequate social services, etc.
- On the other hand, promote and invigorate private initiatives because the national economic development which represent the sum of all private and collective initiatives necessitates a wide participation of all active forces within the nation.

The National Economic Development Program is the sum of all the regional Economic Development Integrated Programmes. The sub-program must be executed by the GGDTVE with the General Planning Commission.

*Remark 1*

For the conception, realization and follow-up of the Integrated Regional Economic Development Program (PIDR), interventions from the following parties are required :

- the state,
- the decentralized territorial collectivities (regions, departments, municipalities),
- the economic operators,
- the populations,
- the funding agencies,
- the Non Governmental Organizations (NGO).

It is important to note that the decentralized territorial organs have direct access to the funding agencies and private funding with the condition that they present a coherent and reliable Economic Development Programme.

*Remark 2*

The opening of the Technical and Vocational Education channel in each region must correspond to the needs for economic development of the region, in particular to the needs of the enterprises under the Integrated Program for Regional Economic Development (PIDR).

### *SUB - PROGRAMME 2 : Setting-up and operating of an employment observatory and services at the regional level and national level (specific Convention, Government, World Bank, UNDP, ILO within the PREFTEC.*

The pilot structure of Technical and vocational Education , permits the people in charge of GGDTVE at the national, as well as decentralized level, to collect information on the priorities of the labor market and on the needs for employment to determine the priority field of training, to meet these needs.

The pilot structure for the creation and development of micro, small and medium enterprises and industries promote the markets for a better orientation towards the economic activity sectors.

National or regional observation of labor use the following as work bases :

- Developing the existing enterprises and enterprises of free industrial zones.
- Developing enterprises to be created under the Integrated Programs for Regional Development.

An analysis of the labor sector in relation to the level of available resources, as well as the level of present and future capacities to generate remunerative jobs, by the creation and the development of economic activities, constitutes an indispensable factor of regional development. In effect, there exists now in Madagascar, and this is true for all the regions of the country, an important disequilibrium between the need for qualified labor in enterprises and the competencies of available labor in the labor market on one hand, and between the existing regional economic potentials little or less exploited, and the human resources susceptible to the exploitation of these potentialities, on the economic level on the other hand.

A good knowledge of the needs, potentialities and availability of the regional labor markets would permit the authorities as well as the economic operators to better orientate their activities and to make their estimated needs better known. This is indispensable in the exploitation of new regional economic potentials.

*SUB-PROGRAMME 3 : Implementation of reforms, programs of adaptation and reinforcement of technical and vocational education (PREFTEC), Government, World Bank, FAC, UNDP, ILO, UNIDO, specific conventions.*

A deeper restructuring of the technical and vocational education is needed at the organization as well as at the functioning of the school level, because the professionalism of the offered training must be more important. The restructuring will involve :

- the reform of the structures
- the reform of the training levels,
- the reform of the content and evaluation models of the training,
- the reform of the names and status of schools,
- the reform of the management and information system of the national plan of action for technical and vocational education .

## REFORM OF THE STRUCTURE

The engagement of the Government of Madagascar towards funding agencies regarding the objectives and execution of the restructuring project of the Technical and vocational (PREFTEC) aim at the effective organization of activities of permanent systems relating to Technical and vocational Education such as :

- The National and Regional Labor Observatory ;
- The National Council for Technical and Vocational Education (NCTVE) ;
- The Resource Center of Personnel of the Technical and Vocational Eduation (CERES) ;
- The Cooperative of Technical School in the Faritany ;
- The National Institute for the Promotion of Training (NPF) ;

### *The National and Regional Labor Market Observation*

It is important for us to recall that the national and regional labor market observation must be a driving structure of the technical and vocational education, which will permit the people incharge of GGDTVE at the national as well regional level, to collect information on the priorities of the labor market and on the content of employment in order to determine the priorities of the training and economic markets which meet their needs.

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### *The NCTVE*

Located at Antananarivo, the National Council for Technical and Vocational Education (NCTVE) aims at directing the coordination, monitoring and control of the training projects financed by the Council within the said policies in view of assuring :

- the qualitative and quantitative adjustments to the training offered, regarding the competencies necessary for the labor market ;
- the rationalization of costs and means, by an optimization of internal and external resources allocated to the sub-sector.

Technical and vocational Education are very expensive and the state is not paying for its total cost. The beneficiaries and the users (the enterprises in particular) must participate in its financing or in the realization of sub-projects of training requested by enterprises by the payment of registration fees or vocational training and youth employment promotion taxes.

### *The GEETP*

Created at the level of all *"faritany"*, the technical and vocational schools (GEETP with a moral personality and administrative and financial autonomy) have as a goal, to offer all or facets of the following training through their member establishments :

- General technical and scientific training permitting youths to efficiently undertake further technical studies.
- An initial vocational training for youths with general education and youths in general technical education who choose to have access to a profession or a group of professions.
- Cycles of training for the professional absorbtion of young job seekers and the professionals.
- Rehabilitation of the personnel of enterprises, victims of the State disengagement or enterprises under difficult situations.
- Continuous vocational training activities for practicing adults, in order to permit them to master their profession, or to improve the level of their professional competence.

### *The CERES*

Located in Antananarivo, the CERES, endowed with a legal status and administrative and financial autonomy, has a fundamental mission of developing the human resources of public and private technical and vocational schools. In effect, it is responsible for:

- Offering training to teachers and administrative and management agents of technical and vocational schools, in order to give them the cognitions that will permit them to follow up with the evolution of technology ;
- Organizing field works, workshop and/or conferences for the same persons;
- Organizing pedagogic vocational training ;

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- Undertaking research and experimentation in the field of technical and vocational education on the technical nature, technicity, as well as on the pedagogy ;
- Elaborating, producing and distributing publications ;

Faritany stands for Province (there are 6 of them in Madagascar).

There are technical and vocational schools, techinical education colleges, and apprenticeship centers.

- participating in the revision of training programs in close collaboration with the employing organizations.
- implementing works ordered by "third party" services

The resource center of the personel of technical and vocational schools receives a technical support from ILO under the project MAG/93-01/IDA, French Aid and French cooperation funds (FAC) and UNIDO the project SF/MAG/93-001.

This support includes the following : valuation, methodology expert in vocational engineering (1 expert in vocational engineering methodology, Senior technical Counsellor of the project, 1 consultant in audio visual multimedia ; 1 associated expert in the management of vocational training schools; 1 chief of project FAC, Senior Technical Counselor to the GGDTVE ; 19 technical assistants specialized in vocational training areas ; 2 experts in equipment maintenance).

*Anticipated situation at the end of the project*

At the end of the project the situation should be as follows:

a) the various infrastructures and the management team of the CERES are operational ;

b) the size units necessary for the development of technico-pedagogical activities relative to the audio-visual, computing, capitalization of training products, documentation, duplication of documents reprography and photography are set up, and have responsible people in charge ;

c) the different counselors are trained. There are :
    - 15 specialized technical counselors (STC) capable of representing vocational areas on the technical level, in order to play the role of interface between the "Professionals" and the "Trainers" of various schools ;
    - 5 specialized technical counselors (CTS) responsible for the training, perfectionning and retraining of the managers of the schools ;
    - 5 counselors in vocational training (CFP) capable of achieving the follow-up activities of the vocational training control and regulation ;
    - 15 technico-pedagogic counselors (CTP), responsible for the pedagogic training, perfectioning and retraining of all the teachers of the national apparatus (public and private) and assuring their follow-up ;

- 5 counselors in charge respectively of services programming/ coordination, conception/ normalization, capitalization/actualization, production /distribution ;
- 30 technical counselors specialized in the maintenance of equipments ;
- 10 technical counselors in communication and audio visual and multimedia services.

This makes a total of 85 technical counselors, as senior staff of the CERES.

*The NPF*

Created in 1974 this establishment with financial autonomy is administered by tripartite council including the representatives of the state, the employers and the syndicates. It is in charge of the accomplishment of initial and continuous vocational training on the one hand, counselling activities in enterprise, production and services on the other hand.

The initial training sessions of roughly 18 months (industrial attachment included), prepare young people for industrial and commercial professions : the continuous training actions generally include perfecting fieldwork designed for employees of the industrial sector according to the specific needs of the enterprise.

The National Institute for the Promotion training received the support of ILO from January 1991 to June 1993 under the project PNUD/BIT/MAG/90-008, it's objective was to reinforce the capacities in management and organization of the vocational training. The INPF is thus the application center of the CERES in quality training and the experimentation center of the GGDTVE for the financial management autonomy which will be generalized to all the public schools of the GEETPs.

The budget of the Institute is comprised of :

a) the fees paid by young people in initial training ;

b) the resources derived from the counselling activities and perfectioning achieved by the enterprises as well as production activities ;

c) the subvention of the state[5].

## REFORM AND TRAINING LEVELS

The adequate employment training implies the diversification of technical and vocational education using various types of training on the one hand, and various levels of qualification on the other hand. To this effect, the GGDTVE has defined the level of training related to the initial training as follows :

- Artisan worker
- Specialized worker

- Qualified employee
- Technician
- Senior technician

*Training of Artisan Workers*

The pedagogical characteristics are the following :

- Qualification after the seventh grade
- Age : more than 16 years old
- Duration of training : 1 year
- Training school : Vocational Apprenticeship Centers
- Result of training : Certificate of Vocational Artistic Studies (CEPA).

The state subvention is about one third of the budget of the institute.

*Training of Specialized Workers*

The pedagogic characteristics are the following :

- Entry qualification: after the fifth grade by means of competitive examinations
- Duration of the training : 2 years
- Training schools : technical and vocational
- Result of the training : Vocational Aptitudes Certificate

*Training of Qualified Employees*

The technical characteristics are the following :

- Entry qualification : GCE ordinary levels + competitive examination for those who are not enrolled in technical and vocational systems.
- The technical and vocational system :
  - the best candidates of technical and vocational college having successfully passed the CAP exam.
  - CAP certificate and examination of files of candidates from the enterprises.
  - competitive examination for holders of the external cap certificate
- Duration of training : 2 years
- Training school : Vocational Schools and Vocational Technical Schools
- Results of training : Vocational Studies Brevet (BEP).

*Training of Technicians (T)*

The pedagogic characteristics are the following :

Entry qualification : BEP + 2 years experience for candidates of the enterprises + concours

- the best candidates at BEP from the public schools

- Duration of training : 2 years
- Training School : Vocational Schools and Vocational Technical Schools (CTP)
- Results of training : Vocational Advance Level Certificate.

  During the transition period, the selection will be made amongst holders with the advanced level certificate in technical and vocational education.
- Duration of the training : 9 months.

*Training of Senior Technicians*

- Entry qualification : competitive examination for holders of scientific series BAC certificate:
  - * The best with vocational advanced certificate level the BAC-PRO, for the public school
  - * holders of the vocational advanced level certificates, for candidates of the enterprises.
- Duration of training : 2 years
- Training school : Technical and Vocational Schools
- Results of the training : Senior Technician Certificate

## REFORM OF CONTENT AND TRAINING MODALITY

To this it is fundamental to introduce in all the training notions of management, law and technical affairs. The approach undertaken in Madagascar for the promotion of micro, small and medium enterprises will be presented and developed in all technical and vocational education .

*Type of Actions*

These are initial vocational training on the one hand adapted to the alternated and capitalist system on the other hand.

*Training Mode*

Residential modular training in the school of technical and vocational education followed by field work in the productive sector.

*Duration of the Training*

Initial training

The transfer of knowledge and competence at each level of qualification (CAP, BEP, BAC, PRO, BTS) necessitates 2 school years.

1st year : Residential Training

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| | | | |
|---|---|---|---|
| - | Theory and practice | - 40h x 30 weeks | 1200 hours |
| - | Study trips, 2 weeks | - 30h x 2 weeks | 60 hours |
| - | Field work in productive enterprises | - 40h x 8 weeks | 320 hours |
| | | **Total** | **1580 hours** |

2nd year: Residential Training

| | | | |
|---|---|---|---|
| - | Theory and practice | - 40h x 30 weeks | 1200 hours |
| - | Study trips, 2 weeks | - 30h x 2 weeks | 60 hours |
| - | Field work in productive enterprises | - 40h x 8 weeks | 320 hours |
| | | **Total** | **1580 hours** |

*SUB-PROGRAMME 4 : Setting up autonomous structures, national and regional training for support for creation and development of micro, small and medium scale enterprises.*

The support of creation of profitable and sustainable economic activities in regions, and the facility to have access to credit for the micro and small scale enterprises, was given high priority in the speech delivered by the Prime Minister.

For that, the Government requests and supports the reinforcing of operating capacities of contractors in Madagascar at the level of regions. Engagements have already been taken between the Government, UNDP, FENU and ILO for :

- the reinforcement of operating capacities and the technical ability of the senior personnel of contractors in Madagascar,
- the sustainability of the activities within an autonomous structure respecting Malagasy laws (non lucrative association with public utility),
- the regrouping in support services for the enterprises (project PNUD/BIT/MAG/89/003),
- the transformation of the length of time of credit provided for Madagascar by the FENU in refinancing by the banks of micro and small scale enterprises and its operations in the shortest delay.

The Government intends to guarantee the autonomy of the structure, in particular, the autonomy of managing the financial products provided by FENU so that contractors in Madagascar can fully facilitate the dynamism of private productive initiatives and contribute in a significant manner to make great strides towards regional economic activities of marginalized populations.

*SUB-PROGRAMME 5 : Setting up national and regional structures for rehabilitation and follow-up of programs (conventions between Government, world Bank, UNDP and ILO)*

The Government recognizes the great importance of economic and social consequences of unemployment and wishes to set-up a national plan also at the regional level, especially, set-up operational structures capable of providing a concrete and personalized support to job seekers and more particularity for those who have no prior experience in the labor market, who have just finished training, as well as those who have lost their jobs because of enterprises being restructured or privatized.

This component (sub- programme) is closely connected to the sub- programme 5 : Employment Observatory which informs it of needs of enterprises.

It is in close relation to the partners using manpower, that the re-orientation, re-training and reabsorption activities can be undertaken in a way that will permit them on the one hand obtain material contributions from these partners for activities of the enterprise, and on the other hand to personalize the services offered based on the precise needs relating to the vacant position.

To succeed in the activities aiming at the improvement of technical and vocational and professional competence relating to vacant positions on the labor market, continuous relations and complements are indispensable in all the technical centers.

Also, facilities should be set-up with the entrepreneurial Madagascar component to allow those who are competent and motivated to orientate themselves towards the creation of self-employment or small enterprises.

## THE GOVERNMENT APPROACH

The approach undertaken by the Government to achieve the various objectives of national and regional economic development and effective decentralization of the economic activities of the populations, is based on very large mobilization efforts, and complement all the components of their development and this decentralization.

To achieve this, the Government must simultaneously answer three complementary preocupations.

*At the level of the State structures,* the Government must direct, reinforce and consolidate the actions of the various technical ministries and specialized administrations in a way that will improve the strategies of sectorial development, the legislations, the administrative, fiscal and other procedures in a manner favorable to regional economic improvement.

To achieve this the Government intends to reinforce the technical and strategic role of the various ministries in order to implement pertinent global strategies at the national level and the shaping and following-up of coherent wealth generating regional programs.

*At the electorate level,* which will pronounce and judge the actions of Government, the latter must undertake sensitizing actions to obtain the contribution and if possible the adhesion of the population to actions undertaken.

To achieve this, it is important to offer to regional populations the possibility to express their expectations and preocupations, so that programs implemented by the Government, will in fact be presented and accepted as responses to expressed needs.

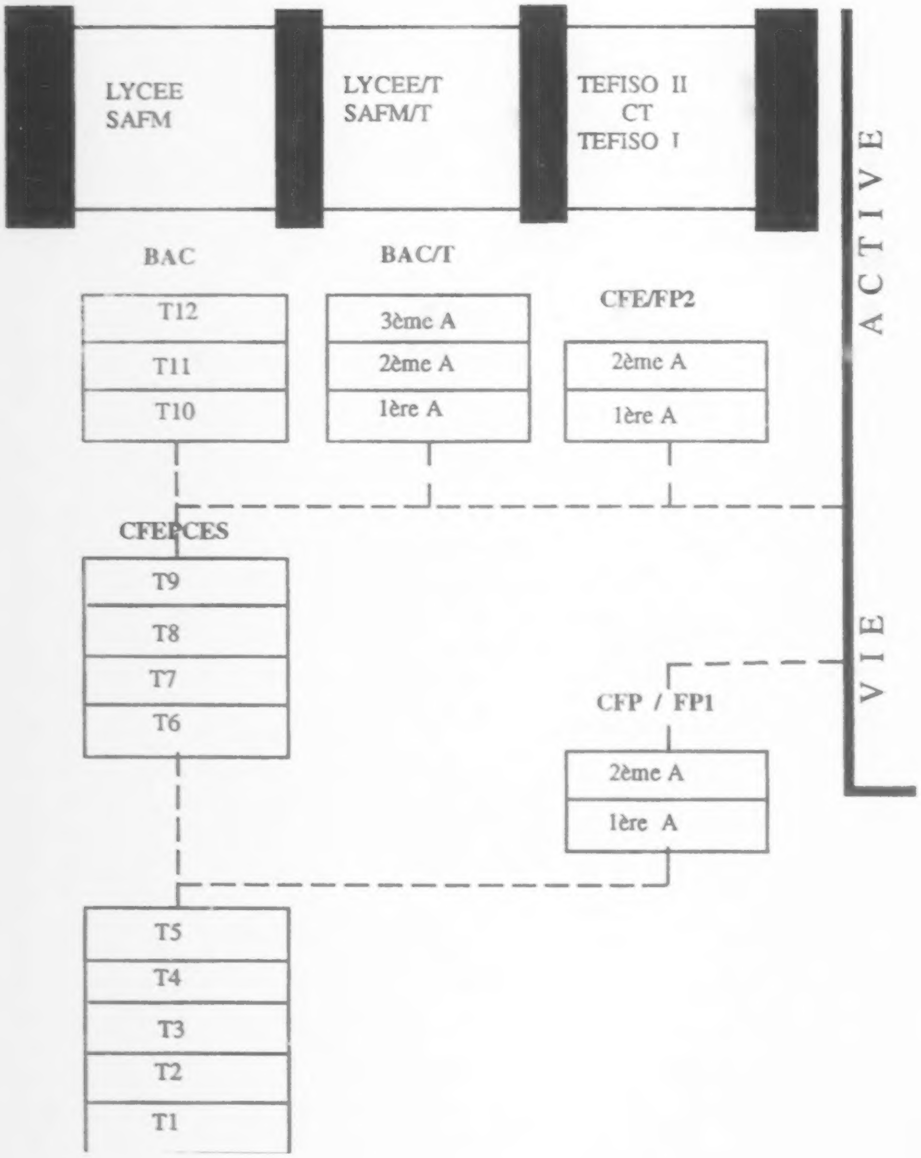
*At the level of regional populations,* (Who have the impression that the said "decentralization" will never reach them), it is important that concrete action be immediately undertaken so that they have confidence in the future. In this area the Government must support and intensify all actions undertaken for the creation of local wealth, self-employment, micro and small enterprises.

It is in sensitizing the population on one hand, and in favoring the creation of economic activities at the basic level on the other hand, that the Government can both collect the information and have the necessary time to fully succeed in the work indispensable to the setting-up of the bases for decentralization that will in the long run become efficient and above all sustainable.

These various activities must be undertaken in a concerted manner, so as to respond fully to the expectations of the Government. To achieve this they must be initiated and placed under the control of the Head of Government.

## ORGANIGRAMME DES FORMATIONS

## MADAGASCAR


LYCEE
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BAC
BAC/T
CFE/FP2
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T11
T10
3ème A
2ème A
1ère A
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ACTIVE
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T2
T1

# CHAPTER 7

# TECHNICAL AND VOCATIONAL EDUCATION IN NIGERIA

*Egbe T. EHIAMETALOR*[*]

## INTRODUCTION

Education is the bedrock upon which national development takes root. The Nigerian Government realises that without education, it is impossibie to develop beyond the stone age era, in which every man is unto himself for survival of a nation and its people. To underscore the limitless power of education, Shehu Shagari, President of Nigeria in the Second Republic 1979 - 1983 asserts eloquently that,

> Education is the greatest force that can be used to bring about redress, it is also the greatest investment that the nation can make for quick development of its economic, political, sociological and human resources.

The President's definition encompasses several dimensions. The education that has great force should be able to train individuals to acquire not only academic knowledge typical of the grammar school form of education but also technical and vocational skills. The investment in education can only be worthwhile if it is capable of enhancing socio-economic development. As education is synonymous with development, it should be able to create technology and develop the manpower to meet the challenges of modern living.

The desired force in the education system can only be created if the quality necessary for such force is present. The inherited colonial Grammar School type of education creates mainly white collar workers which tends to retard that force necessary for development.

This paper looks at the present and future situation of technical and vocational education and the necessary strategies to strengthen the force that would lead to national technology development.

## MANPOWER DEVELOPMENT

Manpower or human development is perhaps the main responsibility of the education system of any nation. It is the process by which any nation achieves to a large extent self-sufficiency in food production, capital and consumer goods production. Human development can be seen more as a means to an end and an end in itself. This is to say that "human beings are both ends in themselves and means of production," (Streeten, 1994). Investment in human capital in the right proportion ensures "high productivity, a well nurished healthy, educated, skilled, alert labour force; it helps to reduce human reproductivity by lowering the desired family size," and it is good for the physical environment. In the case of Nigeria, development of human capital would lead to the understanding of the nature of the environment, the preservation of it and eventually will eradicate environmental degradation, dissertification, deforestation and soil erosion (Streeten, 1994).

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In this regard education creates the possibility of development, that is training the workforce to understand their environment, their role in it and the acquisition of skills. National independence is largely meaningless, if the means of production are in the hands of foreign labour (Ehiametalor, 1994).

There is every reason now than ever before to believe that the appointment of the Ashby Commission in April, 1959, whose term of reference was to conduct investigation into Nigeria's needs for manpower twenty years after independence was a wise decision. One obvious reason for this appointment is that Nigeria can only remain independent, in as much as she is able to meet her manpower requirements for the various sectors of the economy.

The Ashby Commission's report was submitted immediately before independence in 1960. It was an opportunity for the Commission to review the past and make projections for the future development of Nigeria. The report was down to earth and painted what seemed, at that time, a gloomy picture, but it was realistic.

One lesson that was quickly learned from the report was that the road to self-rule is more than territorial governance. The report did show that Nigeria was not quite ready to fill the vacancies that would exist after the British exit and that virtually every field, there was a short supply of manpower. Most striking was the paucity of skilled labour at lower, middle and high levels. According to the report :

> The major defect in Nigerian education, is the strong bias toward the traditional literary and academic subjects. This is reflected in a lack of respect on the part of the public for manual labour. We strongly believe that the most effective way of correcting this would be to introduce a manual subject as an obligatory ingredient of primary and secondary schooling. We like, moreover, to see technical streams in some secondary schools leading to a school certificate examination which includes technical subjects. Experiments on this pattern have been notably successful in some other developing countries and we think this is an aspect of secondary education which Nigeria can ill afford to ignore (FME, 1960).

The report further, indicated that Nigeria would need to produce 500 engineers and 2,500 technicians a year for the next twenty years (that is till 1980) to be able to cater for the manpower needs of industry. One might wonder why there were no middle and high level technical manpower. The simple answer to this question is that, the secondary schools and universities that existed up to this time were oriented toward clerical jobs and the number trained were few and far below the target. Even in the early part of the twentieth century, some missionary schools tried their hands on technical education, but they were quick to de-emphasize it because of the cost involved. The inhabitation of Nigeria by the British was not to develop it to self actualisation but "to obtain raw materials for manufacturing industries in Europe. Different European powers wanted territories in Africa where they could get raw materials exclusively." (Oguntomisin, 1988).

Most importantly, at the time of the report, there was a short supply of technical teachers at all evels of education. Even teachers in traditional academic subjects, in terms of quality and quantity were in short supply in primary and secondary schools. The only teacher training colleges that existed were for the grades III and II. The grade III and II teacher colleges mainly prepared teachers for the primary schools. The grade III teachers taught lower levels of primary school classes (primary 1 - 3) and the grade II teachers besides being appointed head of primary schools, taught the higher classes (primary 4 - 6). The quality of education was not beyond secondary class five. Although Ashby Commission recommended that technical subjects should be included in the school curricula, there were no technical teacher training colleges.

## NATIONAL POLICY ON EDUCATION

The report of the Ashby Commission created awareness. The educated elites were beyond reasonable doubt worried of the quality and quantity of available stock of manpower in every sector of the economy. Some sectors had to depend on imported managerial and technical skills. They were aware that this could not continue for too long. As a result, the first national curriculum conference was held in 1969, where "all known leaders in education in Nigeria; international organisations like UNESCO also participated (Sofolahan, 1986). The conference was aimed at "priming the pump," getting Nigerians to think about the development of the nation in a situation where there is a short supply of manpower in every sector and to come-up with viable options for both short and long run periods for the development of badly needed personnel for the various industries.

Four years later, there was another conference, with participants selected from amongst interest groups, Ministries of Education, Universities in the country and educational practitioners. The conference agreed on a final draft of the recommendations of the 1969 conference on which the National Policy on Education was written.

The National Policy on Education adopted by the Federal Government spelt out in concrete terms what Nigerian education should achieve. All levels of education were carefully redefined to meet the exigency of the time. The broad objectives upon which Primary, Secondary and University education aims rested were spelt out as the building of :

1. a free and democratic society
2. a just and egalitarian society ;
3. a united, strong and self-reliant nation ;
4. a great and dynamic economy ;

5. a land of bright and full opportunity for all citizens.

There was an emphasis on the quality of instruction which ought to be attained at all levels. This encapsulates the inculcation of the following values :

1. respect for the worth and dignity of the individual ;
2. faith in man's ability to make rational decisions ;
3. moral and spiritual values in interpersonal and human relations ;
4. shared responsibility for the common goods of society ;
5. respect for the dignity of labour ; and
6. promotion of the emotional, physical and psychological health of all children, (FRN, 1981).

The National Policy on Education was launched in 1977. The new policy calls for a total change of curricula at the elementary, secondary and tertiary institutions. The policy deliberately laid emphasis on technical and vocational education as was recommended earlier by the Ashby Commission.

In developing the Nigerian nation, the student should be aware of his environment, the condition of his society and the world around him. The curricula at the various levels were designed to emphasize elementary science and technology related subjects. At the secondary school level the curricula offerings prescribed were :

| Core Subjects | Pre-Vocational Subjects | Non-Vocational Electives |
|---|---|---|
| Mathematics | Woodwork | Arabic Studies |
| English | Metal work | French |
| Nigerian Languages[2] | Electronics | |
| Science | Mechanics | |
| Social Studies | Local crafts | |
| Arts and music | Home Economics | |
| Practical Agriculture | Business | |
| Religious and moral Instructions | | |
| Physical Education | | |
| Pre-vocational subjects[2] | | |

*Requirement for Graduation*

Before the implementation of the National Policy on Education in 1982, Secondary Schooling was for a duration of five years and two years for higher school certificate and University education was three years. The new policy has stipulated that secondary school run for six years broken into two segments, Junior Secondary three years and Senior Secondary three years. The duration of Primary education remains unchanged.

To graduate from the Secondary School, the student is expected to meet the requirements as shown below :

1. English Language
2. One Nigerian Language
3. Mathematics
4. One of the following alternative subjects - Physics, Chemistry and Biology
5. One of Literature in English, History and Geography
6. Agricultural Science or a Vocational subject. (Nigeria, 1981)

In this way, the student's further development in science or technology related fields becomes easier. This arrangement seems to be in line with the reommendations of the Ashby Commission's Report.

## DEFINITION OF TECHNICAL EDUCATION

At this junction, it is important to focus our attention on the theme of this case research. it is necessary to attempt a definition of technical education, because in the National Policy on Education section six was devoted to the definition and explanation of the expectation of technical and vocational education.

Technical education "is that aspect of education which leads to the acquisition of skills as well as basic scientific knowledge," (Nigeria, 1991) while vocational education merely refers to that aspect which involves practical training. Though some people may seem to disagree, both aspects can be combined into a single purpose.

In Nigeria there seems to be a general understanding that technical education is academic, that is, the recipient of technical education is exposed to the theory and practice of the trade and such training is usually undertaken in formal educational settings. Whereas vocational education is said to be the training acquired by the apprentice under a master craftsman or skill education acquisition below the tertiary education level.

According to Adetoro (1985) "a vocation... means one's work, occupation or means of livelihood. In ordinary sense the term vocational training is used for a lower level of job training"; in this context, the technical schools which prepare students for craftsmanship or trades and all other occupational training centres, including the roadside tradesman (mechanic, welder, tailor, etc.) fall within the ambit of vocational training.

From Adetoro's concept, technical training can be restricted to the training of engineers, technicians and higher level craftsmen. One important way of looking at technical education therefore, is that the trades are recognised by government and registrable (e.g. the COREN). Whereas, the roadside master craftsman may be equally proficient in his trade but may not be registrable because of the bridges imposed by professional training. However, this writer wishes to emphasize that whatever dignity technical education acquires, it is still a vocation.

In recent years, pre-vocational training has been included in the syllabus of the secondary school system. This merely refers to the awareness of introductory technology. It is not aimed at proficiency in workmanship, but an initiation to the understanding of technology.

## AIMS OF TECHNICAL EDUCATION

According to the policy document, the aims of technical education should be :

1. to provide trained manpower in applied science, technology and commerce particularly at the sub-professional grades ;
2. to provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development ;
3. to provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man ;
4. to give an introduction to professional studies in engineering and other technologies ;
5. to give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant ; and
6. to enable our young men and women to have an intelligent understanding of the increasing complexity of technology (Nigeria, 1981).

The aims of technical education cover the entire spectrum of education; there are three levels covered above :

1. pre-vocatioal education at lower post-primary institutions now known as Junior Secondary School (JSS).
2. vocational Education at upper post-primary institutions, the Senior Secondary School (SSS) ; and
3. Technical education at the post-secondary level (Towe, 1990).

### *Technical Education Programmes*

At the post-primary school level, (that is secondary school level), the following pre-vocational courses are taught :

a) Introductory technology, (which includes woodwork, metal work, plastics, electricity, electronics, automechanic, building).
b) Business studies (includes typewriting, shorthand, book-keeping, economics, commerce).
c) Home economics (includes, Home management, catering and tailoring).

d) Practical agriculture.

Technical education at the post-primary level is basically an introduction to technology and only provides for dexterity training. Although the implementation committee of the National Policy on Education under the chairmanship of late Professor Onabamiro prescribed a supply of complementary equipment in the schools, it would be impossible for the students to devote much of their time to learning skills, as they are expected to enroll in more than eleven subjects. All they need at this level is basic information on the importance of technology to modern living.

### *Technical Colleges*

There are two types of post-primary skill training centres, the technical colleges and vocational schools. Before the implementation of the National Policy on Education, these schools were in existence having been established following the recommendations of the Ashby Commission. The National Policy on Education desired to build new ones and strengthen the existing ones in order to provide skills for youths who otherwise roam the streets.

According to Towe (1990),

> Most of what a nation needs to be great and self-reliant are "by- products' of technical education. To be responsible to the needs of the nation, therefore technical education at this level must produce technical manpower who can produce goods of importance to the ordinary man and run services - uninterupted electricity and water supply, build good roads and homes etc.

The programmes in these colleges were designed to train craftsmen and artisans for the economy. The intention is to produce a core of individuals with skills to enable them fill supervisory positions in assembly plants, fix kick starters, repair automobile body dents, repair motors and so forth.

The programmes were designed to produce individuals who would not only be craftsmen and artisans, but also knowledgeable about the role of technology and the environment in which they live. Bearing this in mind, the curriculum was to have three components :

1. General education,
2. Trade practice, theory and related studies,
3. Industrial training.

It was believed that curriculum designed to produce craftsmen must not only meet the technical aspects of the trade, but also meet the survival needs of the individuals.

### *Programmes*

Modules of employable skills have been prepared for implementation by technical colleges. A few of the modules are presented below :

*Mechanical Engineering* i) Fitting
ii) Turning and lather work
iii) Milling machine
iv) Boring
v) Inspection and measurement
vi) Presses, sigs and fixtures
vii) Tool and dye-making
viii) Drilling, planning and slotting
ix) Grinding
x) Valves, pumps and drive comments (FME 1986)

*Vocational Education* i) Shorthand
ii) Typewriting
iii) Book-keeping
iv) Foods and nutrition
v) Sewing
vi) Home management.

In terms of certification, recipients of technical and vocatioal training can fit into the examination of the City and Guild of London, the West African Craft Certificate Examination, or the Federal Government Trade Test. Besides these examinations, the new technical and vocational programme would lead to three qualifications :

1. The Federal Ministry of Labour Trade Test for those who feel they have completed the period of apprenticeship;
2. The National Technical Certificate, and
3. The Advanced National Certificate (Nigeria, 1983).

Students enrolled in technical and vocational programmes can accept employment while not in school. The training of the individual is based on hands-on-technique and recipients do not necessarily have to wait till they complete their programme or studies. The more private practice, the better for proficiency and the easier to pass the Trade Test.

### *Technical Education at Tertiary Levels*

There are basically three levels of tertiary technical education. These are, technical education at the College of Education level (2) technical education at the Polytechnic and (3) technical education at the University level. It is important that we take these one at a time.

#### *i) Technical Education at College of Education*

Technical Colleges of Education are relatively new. In view of the high demand for technical teachers at all levels of education, the Federal Government decided to set up these institutions, mainly to meet the need of teachers for the 6-3-3-4 system of education. The curriculum at first was designed under the guidance of the Universities' institutes of education, which also moderated the examinations and awarded the National Certificate of Education (NCE). However, in 1990 the Federal Government established the National Commission for Colleges of Education to be directly responsible for the administration, accreditation and award of certificates for all programmes.

The production of technical teachers to meet the requirements of comprehensive secondary schools was one of the major policy objectives of the Federal Government. In order to accelerate the rate of teacher production at the middle level, Polytechnics, Monotechnics and Colleges of Techology, international education agencies were directly involved in the training (FME, 1986). The programmes offered at this level are similar to the recommended syllabus for the secondary system. This seems rationale since the products of these colleges were trained specifically for the school system.

At this level, programmes of study were arranged in an integrated manner, thereby allowing trainee teachers opportunity to specialise in one or two related areas. For example, the trainee in business studies is expected to combine typewriting and shorthand as major areas of specialisation but with electives from general business. Another trainee may major in accounting and commerce and minor in general business. For all students, the first and second years are devoted to the study of typewriting, shorthand, book-keeping, commerce and general business studies. The third year is the specialist year, in which the trainees select either accounting or secretarial option and education professional courses.

In the technology area, the trainee is expected to have a general background in technical education, taking courses in mathematics, engineering, and education.

### ii) *Technical Education at the Polytechnic*

Before 1960, the year of independence, available records show that there were no Polytechnics but only four technical institutes were established at Yaba, Kaduna, Enugu and Ibadan. These institutions which were owned by the Federal and State Governments enrolled students from Secondary Schools. It took more than seventeen years after Ashby Commission for these institutes to be renamed and given new status as Colleges of Technology or Polytechnics. By 1986, the number of Polytechnics had risen to about twenty-nine.

Technical education at the Polytechnic was professional preparation and terminal. As a result, the programmes were deliberately designed to impart theory and practical skills which will enable the trainees fit into various positions in industry. In view of the practical orientation of the programmes, the Federal Government established Industrial Training Fund, mainly to enable technical students to spend one year in industry for practical training and eventual engagement.

Because of the proficiency required of the trainees, the programmes were broken up into two parts of two years duration each. At the end of the first segment, the student graduates with a National Diploma (ND). He is expected to go out and work for a living. In fact, the training is so well prepared that the recipient can terminate his studies and take up a job in a factory or establish a business.

However, there is an opportunity for upward mobility from middle level to high level technical manpower. The second segment was intended to prepare the student for high technical positions. The combination of work experience and theory in the classroom for the last two years, prepare the students for higher and complex tasks in industry. At successful completion, the trainee is awarded the Higher National Diploma (HND). With this qualification, the professional bodies are willing to admit such candidates into their ranks through meeting the examinations requirements for membership.

### *Programmes*

According to Towe (1990),

> It was observed that the eight polytechnics (or Colleges of Tehnology) existing in 1975 offered less than 20 programmes. In the Engineering field, the concentration was only in civil, mechanical and Electrical/Electronics Engineering. Hence the Federal Government made it mandatory that among courses for which adequate provision will be made based on identified needs are Petroleum and Mining Technology, Metallurgical Engineering, Marine Irrigation Engineering, Machine Tooling, Laboratory Technology, Architecture, Surveying and Town Planning, Building and Civil Engineering, Refrigeration and Air conditioning, Agricultural Mechanization and Production Management.

The Polytechnics also offer programmes in such occupational areas, as Catering and Hotel management, Salesmanship, and Retail Trade, Accountancy, Stenography and Secretaryship, Media Communication, Fine and Applied Arts and so forth. Because of the importance placed on technical education and the slow pace at which teachers of technology are being produced, the Federal Government added technical teacher education programmes to some Polytechnics which have the resources to handle such training.

### *Entry Requirement*

In the past few years, entry to Polytechnic institutions has been improved upon. It used to be one credit lower than the University entry requirement. The gap has narrowed considerably. As many students graduated from the secondary schools, there was the need to improve on the quality of technicians to be produced. As a result, the number of credits was steadily increased from four to five. This has made it easier for a student to transfer from the Polytechnic to the University system.

### *iii) Technical Education at the University*

The University education is reserved for those who have acquired enough skills and knowledge necessary for participation in the production function which is theoretically and technically oriented. The Ashby's report was categorical on high level manpower with University degrees. The commission recommended that between 1960 and 1980, 500 engineers per year should be produced.

The only University that existed at the time (University of Ibadan) was only a college affiliated to the University of London and its programmes were in the main tailored to produce white collar workers.

It took more than twenty years for technical education to be taken with seriousness. The National Policy on Education has to a large extent drawn the attention of Government at various levels to technology development.

Although technical programmes were offered in the first generation Universities (Ahmadu Bello, Ife, Lagos, Nsukka and Benin), these programmes were not capable of producing the engineers needed in various sectors of the economy. As a result, between 1980 and 1982, the civilian government created seven additional Universities of technology at Bauchi, Makurdi, Owerri, Yola, Akure, Minna and Abeokuta (FMI, 1986).

### ***Programmes***

The programmes of the conventional Universities in the first generation in technology are all housed in the Faculty of Engineering. The following programmes of studies are offered: Petroleum Engineering, Mechanical Engineering, Electrical and Electronic Engineering, Civil Engineering, etc.

The newer Universities of technology offer a full complement of technology education. For example the Federal University of Technology Owerri, during the 1985/86 session offered courses in ten major areas :

1. Natural and Applied Sciences
2. Chemical Sciences and Technology
3. Engineering and Engineering Technology
4. Chemical and Petroleum Engineering
5. Civil Engineering
6. Electrical and Electronic Engineering
7. Mechanical Engineering
8. Metallurgical and Materials Engineering
9. Agriculture and Agricultural Technology
10. Management Technology

These programmes run through five years - four years of study and one of practial work experience.

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### *Programmes in Technical and Vocational Teacher Education*

Universities with appropriate human and material resources, and equipment are also allowed to run programmes for technical teachers leading to the bachelors and postgraduate degrees in technical education. Universities with such capability are relatively few when compared with the huge number of technical teachers required for the secondary school system, and the vocational and technical colleges. There seems to be a runaway demand for technical teachers at all levels of education.

However, the Universities of Benin, Ahmadu Bello, Nsukka and Rivers State are known to prepare teachers in the technical courses offered at the Junior and Senior Secondary Schools.

There are three integrated areas which the students are expected to select from :

1. The technical education students are exposed to all areas of technical education for two years and during the third and fourth years, the students take courses in their special area of interest or subject they would like to teach on graduation.
2. Commercial education courses are also taught in an integrated form. The students are usually exposed for two years to all areas of business education, accountancy, typewriting, shorthand, commerce/ economics, general studies and education. (UNIBEN, 1994).

Under the ITF funded industrial training, the students in technical education programmes are expected to obtain industrial experience under the supervision of industry personnel and lecturers from the University. Evaluation of the students' industrial experience is a collaborative effort between the host industry and the University.

### *Career Options*

Technical and Vocational education training are not restrictive nor rigid. It is made flexible and attractive to the ambitious career oriented individual. The choice of a path solely depends on the ability or aptitude and attitude of the individual. A student can decide to move from the lower level technical training cadre to middle technical institution and ending at the highest technical manpower training institution.

The curriculum has been designed to provide science and technology awareness to elementary school pupils, with enough background to enable them participate in pre-vocational training at the Junior and Senior Secondary School levels. At these levels the student is expected to acquire enough awareness to decide on a career in technical education either through the technical school for craftsmanship training or College of Education for preparation as a technical skills teacher before entering the job market. It is also possible for the student to choose a direct path to the polytechnic institution or go directly to the

University. Even when already in the job market, there is an opportunity for continuous education.

It must be mentioned that training at each level is terminal. It is assumed, if all things are equal, that the student would have gained enough experience to enter the job market at any of the levels. The question is, are all things equal? This question will be answered directly or indirectly as our discussion progresses.

## FINANCING OF TECHNICAL AND VOCATIONAL EDUCATION

Following the anticipation of the implementation of the new policy on education, the requirement of infrastructures, men, material and equipment, the Federal Government took special interest in ensuring that education was given a prime place in the third and fourth national development plans. As the Civilian Government had just taken over in the late seventies, its impact in the education sector must be felt.

Although the National Policy on Education had been formulated and adopted by the military Government, it was the responsibility of the Second Republic Government to implement what looks like a total break from the past. A break from learning by rote theories to a situation of learning not only theories but the use of the hand to manipulate objects and thereby develop skills.

The third and fourth National Development Plans budgetted huge sums of money to meet the needs of the primary, secondary and tertiary education systems. The reason was that the needs of the economy has shifted from the production of clerical and white collar workers to workers who are capable of producing capital goods for industries and servicing them efficiently. It was also believed that the only route to technology development is through substantial investment in manpower development. In other words, human capital development was seen as an important aspect and necessary ingredient to development. The 1981-85 development plan which was designed by the civilian regime before it was over thrown in December 1983, made the objectives of manpower development very clear. The objectives include :

i) Meeting the requirements of the economy through the expansion of existing educational and training facilities and establishment of new ones in identified areas of need ;

ii) Strengthening of educational and training facilities through, inter alia, improvement in training methodologies, curricula, etc.

iii) Up-grading of the efficiency and productivity of employed manpower through regular training and retraining courses, seminars and workshops.

iv) Reduction in the evel of unemployment through the implementation of employment oriented programmes which were specificially designed for providing relevant skills for the unemployed and assisting them to obtain gainful employments (FRN, 1983).

If we trace the position of education back to the early sixties, it would be clear that planning for education has moved from a relatively poor position to a prime position in the early nineties. Four national development plans, each of five years duration and a two-years rolling plan for Nigeria have been formulated thus far. The National Development Plan, 1962-68, allocated only 2.9 million naira to education, the 1970-74 period, gave 773 million naira but the 1975-80 which has laid more emphasis on human capital formulation allocated 3.2 billion naira. This represents 10.3 percent of the total budget. In the 1981-85 national development plan period, 7.7 billion naira was allocated to education (See National Development Plans for the periods under review). The 1981-85 proposed expenditure was huge when compared with the previous expenditure on education; in 1973, 7.7 billion naira was more than 12 billion dollars. This is quite a huge allocation, (Ehiametalor, 1990).

In the Education sector, allocation to comprehensive secondary schools, technical and vocational institutions were intended to update, improve and establish new ones. For the first time, the plan specifically mentioned the expansion of the Yaba College of Technology, Yaba Trade Centre and establishment of six new Colleges of Technology.

Of significant interest to us in this paper, is the provision for the expansion of the National Technical Teachers' College at Yaba (the only one that existed in the federation at that time) and the establishment of another one at gombe, Bauchi State.

The 1990-92 Rolling Plan took off from where the 1981-85 ended. There was a gap of five years without a plan due to instability in the nation, beause of several military coups. In the statement of objectives for technical education, the Government reaffirms her commitment to the development of technical education. The document asserts that :

> Technical education which includes technological and vocational education will continue to command priority attention from the government. This is more so when government emphasis is on revolutionising technology. Course contents will be geared towards acquistion of practical and applied skills as well as basic scientific knowledge that are directly relevant to industrial as well as technological needs of the country. To this end efforts will be intensified at achieving the prescribed 70:30 enrollment ratio in favour of technology-based programmes in Polytechnics and technical colleges; (FRN, 1990).

Government also indicated as part of her objectives to make structural adjustment in the funding of higher education by putting in more money to fund Polytechnics and other Colleges of Technology, in order "to meet the high shortage of technical teachers, in our Polytechnics and Colleges of Technology", (Nigeria, 1990).

The Rolling Plan planners were quite worried, perhaps, that technical education has not improved tremendously the production of technical manpower direly needed by the nation to accelerate technological development, in order to enhance the production of goods and services. Instead of giving a blanket approval to the Ministry of Education to spend the allocated sum of money as she deems fit, the planners decided to designate specific allocation to technical education projects.

Federal Technical Colleges, for example, were allocated 33 million naira for workshops and expansion of classrooms, 141 million naira was set aside as counterpart funding for supply of technical equipment from Czechoslovakia and Hungary for Federal Polytechnics at Ado-Ekiti and Unwana-Afikpo, 14 million naira and 12 million naira were to be made available for the completion of Engineering complexes at the Kaura Namoda and Nassarawa Polytechnics respectively. Yaba College of Technology was to get 8.8 million naira to complete its hostels, 9 million naira was to be given to Federal Polytechnic, Bida to build its workshop and laboratories; Federal Technical Colleges (for the training of craftsmen and artisans) Ilesha, Jalingo, Ozoro, Okposi, Zuru, Uyo, Shiroro, Kafanchan and Oturkpo were to be provided with infrastructures for 29.2 million naira, (FRN, 1990).

Also for the first time specific amount of money was budgetted for technical teacher education. In addition to the two colleges of eduation (technical) at Yaba and Gombe, six others were established in 1990 at Asaba, Bichi, Omoku, Umunze, Potiskum and Gusau; these colleges were allocated Naira 6.8 million to enable them develop their permanent sites. Because of the problem of foreign exchange, the Technical Teachers Training Programme (TTTP) which was administered in the United States of America was stopped. But it was decided to set aside Naira 3.42 million for Nigerian institutions to mount the programmes. This is at a great savings to the nation.

During the plan period, the five Technical Universities were allocated more money than the first generation universities. The five universities got sixty-eight and a half million naira, (FRN, 1990). The first generation conventional universities got sixty million naira (N60 million).

On paper, it can be said that the Federal Government was determined to produce technical manpower at all levels of education to meet the needs of the various sectors of the economy. It must be understood also that we have only dealt with forecasting of future activities in the technical education sector. What were the achievements? This question would have to be answered.

## ACHIEVEMENTS

There is no doubt that Nigeria has made some progress towards the development of technical manpower at various levels; the situation is appreciably different from what existed before independence. At least the nation can proudly show that self-determination has produced important strides in technical manpower development, notably the implementation of the National Policy on Education which focused on technical and vocational education.

It is important to mention here that Nigerian youths were expected by the National Policy on Education to start the acquisition of technology education right from the primary school and progress on to the university education and/or transit into out of school apprenticeship programmes, (Obanya, 1993).

In the area of technical and vocational education, the number of graduate output (though they may not be in the right proportion or quality) has been very impressive; in fact, at independence, there were no Polytechnics, and the number of graduates in technical education was few and far below the manpower required in this field. At least, as of 1992, the total output in various technical cadres at both Polytechnics and Universities were given as 37,440 and 13,410 respectively (see tables 1 and 2). There seems to be no massive importation of technical labour force, as was the case during the colonial era and a decade or so after independence.

Since the introduction of the National Policy on Education, the National Development Plan has used the principles enunciated in the policy as basis of human resources development. The principle of egalitarianism, land of opportunity freedom, and dignity of labour can only be realised through meaningful liberal, technical and vocational education, aimed at enhancing skill development.

The Nigerian government has also laid emphasis on training and retraining of her youths and adults who had no opportunity to attend the formal school system. The unemployment situation of youths and young adults in 1986 led to the establishment of the national Directorate of Employment under the Ministry of Labour and Productivity in 1987. The main responsibility was to get the idle hands of the unemployed youths from a state of helplessness to a state of "hope".

The Directorate was developed into four main Divisions :

a) National Employment and skills Development programme.
b) Small Scale Industries and Graduate Employment Programme
c) Agricultural Sector Employment programme, and
d) Special Public Works Programmes;

These four Divisions in turn developed among others the following programmes :

i) National Open Apprenticeship Scheme
ii) Waste to Wealth Scheme
iii) Schools on Wheels Scheme
iv) Disabled Work Scheme
v) Job Creation Loan Guarantee Scheme, and

vi) School Leavers' Agricultural Scheme.

The most popular of these programmes is national open Apprenticeship Scheme. This programme essentially provided youths the opportunity to learn a trade from master craftsmen at the expense of the Federal Government. The apprentice or the youth is paid pocket money to enable him cater for part of his needs; his only sacrifice is the opportunity cost of engaging in other trades or staying at home (Ehiametalor, 1994). The scheme looked attractive to youths across the nation. What they were not opportuned to get in the school system, they could now acquire from the master craftsmen and women who dot the city centres and rural areas.

The Open Apprenticeship Scheme trains youths in vocations that would make them self-employed or engaged in gainful employment. Importantly, the scheme was intended to remove youths from the streets. Table 3 shows that in Edo State alone, more than nine thousand youths were engaged in various trades. Since there are centres across the thirty States, the number of youths involved could be more than half a million.

## TABLE 1 : OUTPUT OF TECHNICAL GRADUATES FROM POLYTECHNICS 1990 - 92

| FIELD OF STUDY | June 1988 (Actual) | June 1990 Estimated | | June 1991 Projected | June 1992 Projected | | Total Output 1990-1992 Projected |
|---|---|---|---|---|---|---|---|
| | Number | % Share | No. | No | No | % Share | |
| Agriculture and Water Resources | 603 | 1.90 | 860 | 10,080 | 1,310 | 3.50 | 3,750 |
| Arts and Printing | 1,175 | 3.70 | 1,030 | 970 | 750 | 2.00 | 2,750 |
| Engineering Technology | 6,605 | 20.80 | 7,760 | 8,280 | 9,360 | 25.00 | 25,380 |
| Medical Lab. Sciences | 1,492 | 12 | 1,790 | 1,980 | 2,170 | 5.80 | 5,940 |
| Accounting, Insurance and Finance | 4,001 | 12.60 | 4,070 | 4,080 | 4,120 | 11.00 | 12.190 |
| Administrative and Management Studies | 5,208 | 16.40 | 5,340 | 5,390 | 5,240 | 14.00 | 15,940 |
| Secretarial Studies | 1,461 | 4.60 | 1,210 | 1,110 | 940 | 2.50 | 3,260 |
| Education | 1,143 | 3.60 | 1,450 | 1,720 | 1,870 | 5.00 | 5,040 |
| Catering/Food & Tourism | 1,556 | 4.90 | 1,550 | 1,470 | 1,420 | 3.80 | 4,440 |
| Other Diploma Prog. | 1,408 | 3.30 | 1,170 | 1,240 | 1,200 | 3.20 | 3,610 |
| Miscellaneous Certificate Programmes | 4,541 | 14.30 | 4,970 | 5,030 | 5,320 | 14.20 | 15,320 |
| **All Courses** | **31,754** | **100.00** | **34,480** | **35,770** | **37,440** | **100.00** | **107,670** |

Source : FRN, First National Rolling Plan, 1990 - 92, p. 20

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TABLE 2 : OUTPUT OF GRADUATES FROM NIGERIAN UNIVERSITIES 1990-92

| | June 1988 (Actual) | June 1990 (Estimated) | | June 1991 Projected | June 1992 (Projected) | | Total Output 1989/90-1991/92 |
|---|---|---|---|---|---|---|---|
| FIELD OF STUDY | No. | % Share | No | No. | No | % Share | |
| Arts & Humanities | 5,026 | 13.48 | 5,810 | 6,270 | 6,590 | 11.40 | 18,670 |
| Natural Sciences | 3,386 | 9.08 | 4,600 | 5,490 | 6,470 | 11.20 | 16,560 |
| Medicine and Related Courses | 1,452 | 3.90 | 2,190 | 2,540 | 2,850 | 5.10 | 7,680 |
| Pharmacy | 274 | 0.73 | 560 | 670 | 870 | 1.50 | 2,100 |
| Engineering and Technology | 1,868 | 5.01 | 2,600 | 3,060 | 3,530 | 6.10 | 9,190 |
| Environmental Studies | 1,049 | 2.81 | 1,390 | 1,760 | 2,140 | 3.70 | 5,290 |
| Agriculture and Related Courses | 2,130 | 5.71 | 2,840 | 3,210 | 3,810 | 6.60 | 9,860 |
| Veterinary Medicine | 215 | 0.58 | 510 | 730 | 810 | 1.40 | 2,050 |
| Social Sciences | 4,995 | 13.40 | 5,860 | 6,270 | 6,700 | 11.60 | 18,830 |
| Business and management Studies | 3,060 | 8.21 | 3,390 | 3,630 | 3,390 | 6.80 | 10,950 |
| Education | 11,649 | 31.24 | 14,410 | 15,760 | 17,450 | 30.20 | 47,620 |
| Law | 2,181 | 5.85 | 2,320 | 2,440 | 2,540 | 4.40 | 7,300 |
| **All Courses** | **37,286** | **100.00** | **46,480** | **57,830** | **57,790** | **100.00** | **156,100** |

Source : FRN : First National Rolling Plan, 1990-92, January 1990, p. 201

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Table 3 : **National Open Aprenticeship Scheme, Edo State**

| TRADE | Recruitment from Inception to December, 1993 | | |
|---|---|---|---|
| | Male | Female | Total |
| Fashion | 995 | 1,206 | 2,201 |
| Secretarial Studies | 1,105 | 1,055 | 2,160 |
| Hair Dressing | - | 751 | 751 |
| Furniture Making | 964 | - | 964 |
| Auto-Mechanic | 656 | - | 656 |
| Auto-Electrician | 695 | - | 695 |
| Electronics | 604 | - | 604 |
| Refrigerator and Air-Conditioning | 605 | -<br>- | 605 |
| Printing | 215 | - | 215 |
| Art and Sign | 155 | - | 155 |
| Panel Beating | 125 | - | 125 |
| Shoe Making | 121 | - | 121 |
| Music | 155 | 61 | 216 |
| **Total** | **6,395** | **3,073** | **9,468** |

*Source : National Directorate of Employment, Benin City, 1994.*

The table above shows a tremendous improvement in the development of technical manpower training among the unemployed youths.

## PROBLEMS AND ISSUES

In order to have a better perspective of the future, it is important to look at the present. This will enable the planners of manpower development and the Government to have a more balanced picture of the achievements of the goals of the nation. It is therefore important to take stock of manpower development and in attempt to do this, the authors of Qualitative Education assert that :

In 1978, the total enrolment of technical colleges was 17,482 with an annual output of 6,628 graduates. This is far below the 28,600 technicians that were expected to be produced annually between 1980 and 1985; in 1975, there were 332,500 technicians, yet 10,680,000 must be available by the year 2000 A.D. By 1981/82, however, enrolment rose from 42,500 students in 26 Polytechnics to 52,373 in 1982/83 and 58,983 in 1983/84 in 29 Polytechnics, (Qualitative Education, 1986).

The picture painted above does not seem to show that we are making enough progress in the area of technical education but when viewed in relation to the situation of Nigeria 34 years ago, when there were no polytechnics, there is tendency for one to give a good mark for progress.

However, if we use the standard of Russia which produces about 800,000 engineers per year for a population of 270 million, which is about one engineer to 338.8 persons, Nigeria which has a population of about 100 million people would need to produce 296,297 engineers per year and about 1.5 million technicians a year to meet the services of the people. This figure is not astronomical at all. All that has been said is that for every 338 persons in society, one is an engineer and five persons are technicians; this figure represents the number of technically qualified persons needed in the economy to service industries and homes. Obviously, the level of capacity utilisation in industry will increase, as well as the level of productivity.

Perhaps, if we use the figure of actual production of engineers and technicians in Russia, Nigeria could be considered to be far short of the technicians required to service its economy. There is no doubt that the Government's intention is to achieve similar goals, but there are difficulties inherent in such efforts.

### *Implementation of the National Policy on Education*

The 6-3-3-4 system of education was intended to lead the nation to the optimum production of engineers and technicians. The innovation is unprecedented. The plans and implementation arrangements were beautiful on paper but, the masiveness of the innovation had worked against its successful implementation.

The planners of the national Policy on Education envisaged a situation where all the elementary, secondary and tertiary institutions will be totally transformed from liberal arts institutions to technically oriented institutions, with the availability of all the required tools, materials and personnel needed to educate the children. Being an oil rich nation with relative prosperity at the time of the plans, meeting the needs of the education system was considered possible.

Since the lot fell on the civilian government to implement the new system, on taking over in 1979, the government made it clear that :

> previous lip service to technical education has done a lot to keep the nation technically bankrupt. Without necessary materials and tools, much of them is imported, it would be wasteful to establish technical colleges or even import teachers without allowing them the tools with which to practice what they are employed to do. Teaching aids and tools most of them expensive are an essential ingredient in technical education output, (Qualitative Education, 1986).

Government herself realised the importance of tools and equipment. Hence in 1981 the National Assembly voted 50 million Naira to educationally disadvantaged States to aid them in the provision of science and technical equipment. In 1982, 34 units of Introductory Technology workshop equipment were made available to each State and in addition, for each State the Federal Government provided equipment that would furnish one secondary school to the level of Federal Government Secondary School. During the same year on the request of the National Council on Education, the Federal Government on behalf of the States placed order for Introductory Technology equipment from Czeckoslovakia, Hungary and Bulgaria for all Secondary Schools in Nigeria at a cost of 108 million Naira, (Sofolahan, 1986).

On arrival, all the States Secondary Schools were supplied the introductory Technology Equipment. Since the equipment were not just hand tools, there was need for special installation. This would cost additonal money from States; Besides, no provisions were made for workshops and electricity.

Since most of the States Schools are located in the rural areas, electricity was harldly available, generators were therefore required to provide necessary power for the equipment. The State governments did not have the money for such expensive projects. The end result was that most of the equipment supplied to States were neither installed nor utilized for the purpose for which they were imported.

In a 1982 survey (although the number of schools surveyed was not known), only 32% of the schools in the survey had introductory technology equipment installed. There were several reasons for the non-installation of the equipment, 20% had no funds, 30% had no workshop, no electricity 39%, no security 18% and 44% gave other reasons (Obanya, 1993). In 1994, it is sad to find that some of the equipment have not been delivered to schools, where delivered, no installation has taken place. Moreover, thieves had made away with valuable hand tools which can easily be carried away.

### *Lack of Teachers*

The Federal government was quick at providing the States the needed equipment from three European countries but did not consider the manpower to utilise the tools. This makes a mockery of the entire situation.

A study carried out by Okeke shows that one of the major problems facing the school system is the lack of technical teachers; the study carried out in Anambra State does reveal that there were not many technical teachers available, (see Table 4 below).

Table 4 : **Status of the Pre-Vocational Subjects in Terms of Teacher Requirements in Anambra State (1985/86)**

| SUBJECT | No. of schools offering the Subject | No. of teachers Teaching the Subject | No. Qualified to teach the Subject |
|---|---|---|---|
| Integrated Science | 362 | 642 | 42 |
| Introductory Technology | 362 | 445 | - |
| Business Studies | 341 | 483 | 13 |
| Local Craft | 29 | 19 | 16 |
| Home Economics | 175 | 291 | 256 |
| **Total** | | 1,880 | 327 |

*Source : Okeke, C. C. (1989), Provision for Prevocational Subjects at SSS Level in Anambra State*

The findings shown in Table 4 seem to paint a gloomy picture of the state of Pre-Vocational programmes in Anambra State; of the 1,880 teachers teaching pre-vocational subjects in the 362 schools in the State, only 327 teachers were qualified, which means on the average about one qualified teacher can be found in any of the schools. In the area of introductory technology (mechanic, electronics, woodwork, metal work and technical drawing), none of the 445 teachers who taught the subjects were qualified to teach them.

In 1984/85 session the number of teachers required was 30,000 pre-vocational teachers but the number available was negligible. There were only two technical colleges established at that time to train teachers to teach technology related subjects. The only college with some technical teachers output was Akoka, and that year it produced only 203 teachers and since its inception in 1980/81, it had produced ony 1038 graduates, (see Table 5).

Table 5 : **Graduate Output by Federal College of Education (Technical) in Lagos**

| Years | TTC | TTC Other Fields | NCE Technical | General | Total |
|---|---|---|---|---|---|
| **1980/81** | 56 | 16 | 41 | 51 | 164 |
| **1981/82** | 84 | 13 | 48 | 81 | 226 |
| **1982/83** | 96 | 25 | 35 | 54 | 210 |
| **1983/84** | 103 | 13 | 49 | 70 | 235 |
| **1984/85** | 77 | 19 | 40 | 67 | 203 |
| **Total** | **416** | **86** | **213** | **323** | **1,038** |

*Source : J.A.O. Osofolahan "Implementing the 6-3-3-4 System," p. 44*

However, with the establishment of more technical colleges for teachers, the situation may have improved during the 1992/93 session. The same problem that was experienced in the public school system has also occured in the Colleges of Education. Much of the equipment required by the Colleges were not available. For State Colleges of Education, the funds were just not available. The Federal Government-owned Colleges of Education seemed not to have acquired the necessary infrastructure because of the corrupt tendencies of officials at various levels. The bloated exchange rate also affected the importation of technical equipment needed by the Colleges it is one good thing to establish a College of Education, it is another to provide it with the necessary tools and manpower to carry out the production function.

## STRATEGIES FOR THE FUTURE

Past events in the Nigerian educational, political and sociological settings should help to provide a path to the future. From current events, the future though seems precarious, it is important to find ways of remedying the mistakes of the past, especially in achieving the goals the Nigeria nation has set for herself.

Industrially, developing nations (Nigeria not an exception) are learning that industrialisation is a product of several unfixed variables, and contrary to earlier beliefs, technology canot be imported to any country without a well-developed educational system.

Here a few of the strategies that would lead to the achievement of the nation are discussed.

### *Strengthening the Educational System*

The new curriculum which was developed along the national policy on education objectives can lead to the achievement of a sound technology education. The problem certainly is not the curriulum or the planning. The problem is how to make the institutions responsive to the demand for quality education.

The questions therefore are :

i) how do we make technology education accessible to all learners,

ii) how do we make technology teaching relevant to our environment,

iii) how do we train teachers appropriately for the system, and

iv) how can the capacity to develop materials be improved upon, (Obanya, 1993).

The accessibility of all learners to technology education was the main objective of the new policy, but the down turn of the economy in the past few years only makes this possible theoretically. Accessibility to technology education is a product of demand and supply of the variables that would make such learning possible.

The findings of researches on the implementation of the national policy on education are similar, indicating that students have no equal access to technological equipment. Even where such equipment and tools are made available, they were neither installed nor used for the purpose for which they were bought, (Obanya, 1993 ; Etuk, 1989 ; Okeke, 1989).

The only way the government can cope with the requirements of technical education as spelt out in the national policy on education is to have a rethink about the implementation of the 6-3-3-4 system. From our present knowledge of the technology components of the system, the only way of achieving the goal of technology education for all is to embark on "selective implementation" (Ehiametalor, 1989). What this means is to embark on a dual system of education.

#### *i) Science and Technology School Programme*

This type of school setting will require that Government provide all the needed infrastructures and equipment necessary for both science and technology education. Although liberal arts will be offered, emphasis will be placed on science and technology. In the area of technology, introductory technology will be offered at the junior school and at the high school, woodwork, electrical and electronics, metal work, mechanics will be offered in addition to science subjects. If a State has 300 secondary schools, the government will deliberately provide for 150 or fewer of these schools the necessary equipment for science and technology.

*ii) Science/Liberal Arts Programme*

At the preset time, practically all schools run these programmes with a slight leaning towards introductory technology. The students enrolled in this programme will be exposed to all the basic sciences and arts subjects, with a possibility of specialisation in either science or arts in future careers. The uniqueness of this programme is that the government would not have to spend as much money as in the first category.

In the two programmes, the government will only be concerned with supplying technology equipment and tools to half of the schools in the State while all the schools in the State will be supplied with science equipment. Instead of allocating millions of naira to purchase a few units of equipment for one school, the existing equipment can be redistributed to different schools that already have the potential to offer technology education, while schools that lean toward science and arts education should be supplied the equipment they need.

If this is done, the government would have succeeded in providing a sound basis for science and technology education. The students in science and liberal arts secondary school still have the opportunity to study technical subjects, at the tertiary level. The only difference is that at the secondary school level, technology equipment are not provided for all the students. Like their counterparts, the students with science orientation can move on to the Polytechnic, or University of Science and Technology, while the students with liberal arts background go to the conventional College of Education or university for further education.

### *Strengthening the Teaching Force*

Available information shows that most of the secondary schools in Nigeria do not have the required qualified teaching force in technical subjects. In fact as reported earlier, the lack of teachers in technical subjects is perhaps, the most difficult problem the schools with technology equipment have had. In some cases technology teachers do not have the required training to enable students benefit maximally from instruction.

In order to strengthen such teachers, for higher productivity it is important that retraining programmes and equipment are provided. In 1983, the National Board for Technical Education collaborated with six federal Universities, Benin, ABU, UNN, Ilorin, Lagos and Ibadan and the Federal Ministry of Education to run an in-service programme during the long vacation for technical teachers. The programme ran for a few years and it was not sustained.

The only way to empower teachers to perform effectively and eficiently the responsibility of teaching assigned to them would be to provide more in-service training programmes carefully designed along the school curriculum. The conceptualisation of the programmes should be based on what the teacher ought to know to enable him prepare the secondary school students for careers in technology. The unqualified teachers being used at the moment to teach the technical and vocational education subjects could be retrained through long vacation courses.

The assumption that once a teacher attains a degree he is no longer to worry about further education should be reversed. Education is dynamic, students go through a dynamic process and the teacher should learn to be dynamic through the upgrading of his knowledge and skill. In-service education provides this opportunity. The 1991 Dakar Conference recommended among others, the need for African Nations to provide training and retraining opportunities for teachers (UNESCO, 1992).

The clamour for the training of teachers of technology will be meaningless, if the needed requirements and infrastructures are not available. A teacher who has learnt by rote has no other skill to impart other than memorisation. The Universities assigned in the early eighties to provide in-service training for technical teachers did not all have the required infrastructures and qualified teachers to carry out the assignment. It was more like a way to earn extra money from the Federal government rather than empowering teachers to be effective in their teaching responsibility.

If the purpose of education as spelt out in the National Policy on Education is to develop manpower for the integration of the Nigerian economic system and self-reliance, the educational system at the three levels must be developed to provide knowledge that will, enhance the "integration of physical, institutional and social infrastructure; the integration of the production structures", (UNECA, 1993), the integration of her market and the markets of Economic Commuity of West African States (ECOWAS). Government must as a deliberate policy invest heavily in education and encourage the community and the private sector to be closely involved as well.

In industrially developed nations, Ghosh and Neogi (1993) tell us that "technological change is the consequence of innovation or adoption of new technology developed by the best practice". No nation can promote innovation or adopt new technology, unless the educational system develops the individuals to under study the technology by the "best practice". It can be said that education creates the "best practice.".

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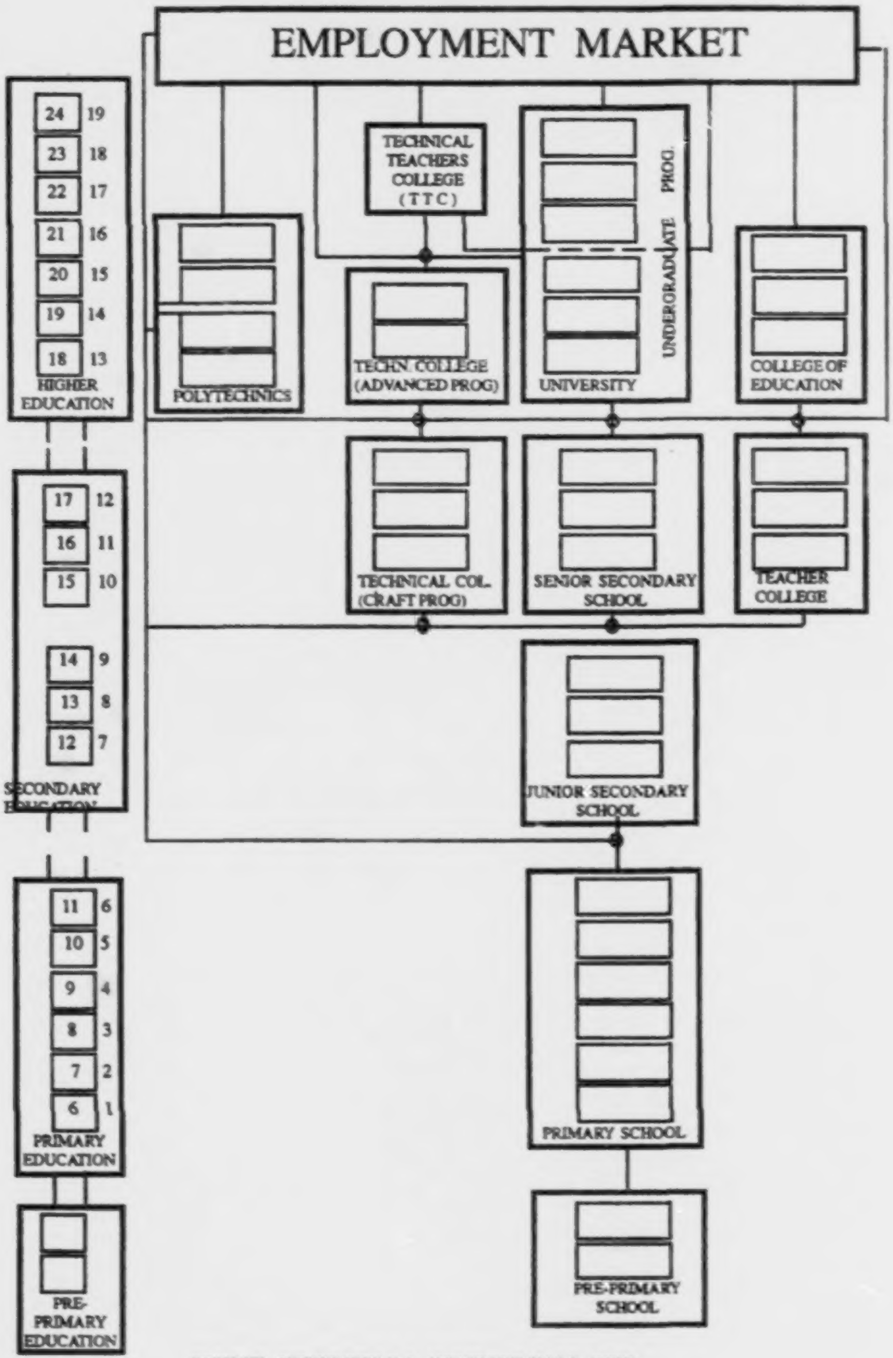
EMPLOYMENT MARKET
24 19
23 18
22 17
21 16
20 15
19 14
18 13
HIGHER EDUCATION
TECHNICAL TEACHERS COLLEGE (TTC)
POLYTECHNICS
TECHN. COLLEGE (ADVANCED PROG)
UNIVERSITY
UNDERGRADUATE PROG.
COLLEGE OF EDUCATION
17 12
16 11
15 10
14 9
13 8
12 7
SECONDARY EDUCATION
TECHNICAL COL. (CRAFT PROG)
SENIOR SECONDARY SCHOOL
TEACHER COLLEGE
JUNIOR SECONDARY SCHOOL
11 6
10 5
9 4
8 3
7 2
6 1
PRIMARY EDUCATION
PRIMARY SCHOOL
PRE-PRIMARY EDUCATION
PRE-PRIMARY SCHOOL

SOURCE: ADEJUMOBI, S.A. AND IVOWI, U.M.O. (1985)
COMPARATIVE EDUCATION FOR NIGERIA

# CHAPTER 8
# TECHNICAL AND VOCATIONAL EDUCATION IN ZIMBABWE

*N. N. MUNETSI*[*]

## INTRODUCTION

### *Background*

In the course of its development, the human race has devised a diversity of mechanisms for survival. One of these mechansims has been the educational system which was designed to prepare the younger generations to effectively fit and become productive members of society. This system has tended to be geared to service and sustain society's geographical setting, population characteristics, economic needs, social interests and political order.

In traditional societies, it has also tended to be generally sensitive to the age, gender, status of the family in society and envisaged role of the individual in adult life. On the other hand, in modern society, the educational process has generally remained sensitive to the age of the individual, with less emphasis on segregatory considerations and pre-determined roles in adult life.

For the effective operation of the system, the traditional society placed the onus on parents and respected elders, while modern society depends on specialists. These differences have been occasioned by the simplistic nature of traditional societies and the complex nature of modern societies. While traditional societies tend to be generally small and based on simple economic activities, and closely influenced by natural conditions, modern societies tend to be larger and based on complex economic activities generally independent of natural conditions.

Besides the influence of endogenous factors, the education systems of societies have also been influenced by exogenous factors, like colonisation by belligerent outsiders or preparation to resist the encroachment of such foreigners.

Either the foreigners imposed their education systems to consolidate their occupation or the local political authorities established systems of education to equip their societies to counter intrusions by foreigners. In both traditional and modern societies, the successful completion of certain levels of education tends to be marked by some form of initiation.

In this regard, Zimbabwe has not been exempt from those experiences. Prior to the advent of colonialism, in 1890, the traditional society in Zimbabwe had systems of education styled along the lines discussed above.

The various tribal groups generally had a dual educational system which catered for members of the chieftainship, on the one hand, and members of the generality of the

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population, on the other. In the case of peaceful and decentralised tribes, the education system for the majority was geared for productive activities of the community, while the education system of the centralised and belligerent tribal groups generally focused on training for wars with other tribes. In both cases, however, the education systems were similarly structured, with the first phase consisting of teaching the youngster communication skills and societal mores, followed by training for adult life.

Responsibility for the effective operation of the system was generally left to the parents, for infants, and designated community elders, for the juveniles, in the case of peaceful tribes. In respect of the belligerent tribes, responsibility for the grooming of juveniles was generally shouldered by the chief's agents who were to train the youngsters for the war effort.

In their operations, the education systems in the tribal groups were generally sensitive to the juvenile's age, gender, family status and envisaged role as an adult in the community. While female juveniles were groomed for motherhood, their roles as wives, and other feminine skills, male juveniles were groomed for fatherhood, their roles as husbands and other masculine skills. In either case, the educational process for juveniles entailed some form of apprenticeship, wherever possible, and culminated in some form of initiation to mark its successful completion and attainment of adulthood by the juvenile.

Following the colonisation of Zimbabwe in 1890, the tribal educational systems were generally destabilised, in the same way the way of life of the tribes was generally affected. The settlers brought with them a new and complex social, political and economic order which even split some tribal groups, by demarcating the boudaries of Zimbabwe as they are to this day. This new order also introduced education systems to serve the complex situation which included a larger population and wider territorial coverage. The systems were formalised and did not assume any predetermined roles for the juveniles in adulthood, but were strongly influenced by the origins, experiences and aspirations of the settlers. These systems generally distinguished basic education from technical and vocational education, with the former emphasising academic development, while the latter emphasised preparation for the world of work and tended to be made available to the few who had gone through appropriate basic education.

In this paper we present Zimbabwe's case study of the role of technical and vocational education in the education system. We shall examine its goals and objectives, Government policy and administrative strutures, trends, issues and prospects.

### *Technical and Vocational Education (TVE) in General Perspective*

For purposes of this paper and in the light of the observations made above, technical and vocational education is understood as a form of education which prepares the individual for an ultimate occupation which could constitute the individual's career or basis of such career. The process involes imparting the necessary cognitive, psychomotor, affective and perceptual skills needed by the individual for the effective and efficient performance in a given occupation or areas of specialisation. It generally takes place after the individual has gone through some general basic education or attained a certain minimum age. Stated in full, the process is generally referred to as technical and vocational education and training which, nowadays, generally caters for people in the age-group 16 - 30 years. During this period, the individual should be able to decide and settle for a specific career in life. In some countries, technical and vocational education is even available to youngsters at as early an age as 12 years, that is just after completing seven years of elementary or primary education, while other countries prescribe both the minimum number of years of such elementary eduation and the minimum age before taking TVE.

Various approaches have been adopted worldwide to offer TVE either within or outside the school system, depending on how a given society envisages the role of TVE in the education system. Where society views TVE as purely a process of preparing students for subsequent training or orientation or guidance for the world of work, it tends to be integrated into the general education system. This tends to be done through either offering practical subjects or establishing technical secondary or high schools as has been generally attempted in most Third World countries. Where society views the general education system as a process of grooming students for both direct productive careers and further training, the tendency has been to establish comprehensive secondary schools, such as in the USA. In such cases, the schools have either tended to be streamed, in order to create opportunities for students to either proceed with academic studies or acquire know-how needed for productive life, while also permitting others to combine the options. Some token industrial attachments have also tended to be arranged during either the school term or the school holidays. In some cases, such attachments have ended up being industrial visits. On the other hand, where society views TVE as distinct from general education but purely a process of actually equipping the students for a productive career in a given occupation, the tendency has been to refer to the process as further education or tertiary eduation. This tends to be offered after the student has completed specified years of elementary/basic education.

In such cases, distinct technical and vocational training institutions have been established. These offer specific courses in specified areas of specialisation and culminate in the award of some level of professional accreditation. The process involves both institution - based and industry - based training which is appropriately and deliberately proportioned, with the industry component being generally longer than the college component. This tends to be generally found worldwide in both developed and developing countries.

In pre-independence Zimbabwe, the ruling class generally perceived TVE as a process of preparing the young generation, especially European children, for specific occupations and careers in the productive world. The system and approach to TVE were, however, strongly influenced by such factors as the geographical characteristics, economic structure and the political order. These factors are discussed below .

## THE SOCIO-ECONOMIC CONTEXT

### *The Influence of Geographical Characteristics on TVE in Zimbabwe*

Zimbabwe is located in the Southern African tropical sub-region between 15° and 23°S, 25°E and 33°E, and lies on the African Plateau, with about 95% of the land lying between 300 and 2400 meters above sea level. It has a rich wealth of natural resources, including minerals, flora and fauna, and rich soils which sustain a variety of farming activities which include game ranching, agriculture, horticulture and animal husbandry. Its average annual temperatures can be divided into three categories : the hot region in the low veld areas to the extreme north and south (over 20°c), the warm region covering the rest of the Middle veld and virtually all the Highveld (15° - 20°C) and the cool region covering the highest parts of the country (15°C or less). It has four distinct seasons which generally have 12 hours of daylight, while the rains ranging between 400 and 1 400mm per annum fall in summer, except for the occasional drought periods.

The country has a high potential for manufacturing and commercial activities. Being centrally located in the sub-continent, it is best placed to easily facilitate international trade with other African countries, especially southern, central and eastern regions.

Given its economic potential, conducive climatic conditions, strategic geographical position and closeness to South Africa, Zimbabwe easily attracted European settlers led by Cecil John Rhodes, with his dream of a British Empire stretching from Cape to Cairo in the late nineteenth century. To ensure that they got the most out of the country for themselves, the settlers partitioned the country, taking the best part of it. Under the land Apportionment Act of 1930, the land was divided along racial lines, with 30,1% being reserved for Africans and 51,4% for Europeans. This was slightly revised under The Land Tenure Act of 1970, with 46% being reserved for Africans and 50% for Europeans, while the rest was State land. The landlocked nature of the country dictated that its transport and communications infrastructure be appropriately developed in order to establish and maintain effective links with its neighbours and the rest of the world. The boundaries established in 1890, on the basis of Berlin conferene of 1884, have been maintained, with a total surface area of 389,000 square kolometres.

These geographical characteristics and location of Zimbabwe have influenced not only the socio-economic historical development of the country, but also its concomitant technological and educational development. The closeness of the country to South Africa made it a natural destination for wealth-seeking settlers from that country.

These settlers became ruling class consisting of people coming from different backgrounds and motivated by the desire to exploit and dominate the country. These included the British, Dutch, German, French and other European and Asiatic countries. They were bound together by their strong belief in "white supremacy". This ruling class introduced systems of education and TVE which were influenced by their origins in Europe and South Africa and geared to sustain the racist philosophy in Zimbabwe. They partitioned the country on racial lines, in such a way that Europeans occupied the best parts of the country. In line with their phylosophy, the colonial rulers established a Ministry of Education to establish and develop a system of education and TVE for their children so thay they could be groomed to be masters in every socio-economic sector. The system heavily borrowed from the British setting, given the preponderance of settlers from Britain and the fact that the country was a British colony. Generally, elementary education preceded TVE. In respect of the indigenous people, the settlers established a system of African education under the Ministry of native Affairs and later controlled by the Department of African Education. This system was intended to groom the indigenous people for subordinate roles in the socio-economic set-up of the countrry, in line with the spirit of establishing a relationship of "the horse and its riders" between Africans and Europeans. In this regard, the education system was sparingly developed to groom only a minority of locals to become literate enough to be able to take or read instructions and assist the ruling class in controlling and supervising the rest of the illiterate majority. Training was informally offered on-the-job by individual employers who ensured that the indigenous people remained unskilled or semi-skilled, without posing any form of competition to any member of the ruling class.

In line with the racist philosophy and racial partitioning of the country, the education and TVE programmes and institutions were deliberately organised and established in European areas. This was a heritage to be addressed at independence in 1980, when the egalitarian philosophy superceded the racist philosophy. The new order sought to extend education and TVE to the majority on a country-wide basis. Developments in this regard after independence will be discussed in a later section in this paper. Let us now examine the influence of population characteristics on education and TVE.

## THE INFLUENCE OF POPULATION CHARACTERISTICS ON TVE IN ZIMBABWE

In the preceding discussion, we have observed that the traditional society utilizes an informal form of education and training which services a small community with simple forms of socio-economic organisation and activities. In our discussion of the concept of TVE, we noted that it is a system which is generally designed for juvenile who are either in or out of school. On the other hand, in our discussion of the influence of geographical characteristics on education and TVE, we noted that the programmes and institutions were designed and established to service the needs of population groups located in racially segregated areas. We also noted that the supremacist philosophy of the settler or rulers strongly infuenced the provision of education and TVE, and that they system was geared to serve larger population group than tribal communities.

With the advent of indepedence, the national philosophy has emphasized the establishment of an egalitarian society based on majority rule. Health and Education services have been improved, while conditions of peace are being maintained. Infant mortality has dropped from 83 per 1,000 in 1978 to 66 per 1,000, in 1990, while the general life expectancy has risen from 57 years, in 1978, to 61 years, in 1990. The population growth rate is estimated at 3.1% per annum.

According to the "Indicator Monitoring Survey (IMS) 1993" (Central Statistical Office (CSO), 1994), the total population of Zimbabwe was found to be 10,638,418, consisting of 5,169,931 males and 5,468,487 females (a sex ratio of 95 males to 100 females). 45% of the population were below 15 years of age, and, therefore, being of basic school-going age but requiring to be subsequently absorbed by the education and training system. On the other hand, 39% were found to fall in the age-group of 15 - 39 years,and, therefore, constituting the immediate clientele for the TVE system. Two-thirds of the population were rural-based while one-third were urban-based.

These population characteristics also have several implications for the provision and nature of TVE. The distribution of the TVE infrastructure should be such that it takes into account the size of the population and corresponds to the population ratios. Facilities and enrolments should reflect the population gender ratio and prepare to absorb the proportion of school-leavers due to come out of the various levels of the school system. Further, the facilities should be geared to adequately serve the training needs of the population groups which are already out of school, as employed or unemployed people. More facilities should be made available for rural-based than for urban-based population, while the nature of the TVE should be such that it prepared the trainees for productive activities within the environment where they live.

In terms of the education background of the population aged 5 years and above, the study found that 14% had not attended school, 35% were at school and 51% had left school. In terms of literacy, it was found that the literacy rates were 92% in urban areas and 70% in rural areas, while the national average rate was 77%. Literacy ratio differences by gender showed that males had a higher literacy rate than females in general as follows :

| | Males (%) | Females (%) |
|---|---|---|
| Overall | 83 | 71 |
| Rural | 78 | 64 |
| Urban | 94 | 91 |

There is, however, a close margin in urban areas.

In terms of school enrolments, for the age-group 5 - 25 years, it was observed that of those eligible, 60% males and 53% females were actually enrolled in schools, giving a total of 56% (3,176,452 out of 5,702,635). In urban areas, the enrolment rates were 55% for males and 49% for females, with an urban total rate of 52%, while, in rural areas the rates were 60% males and 54% females, with a rural total of 57%.

This educational background of the population also affects the provision and nature of TVE in several ways. TVE programmes need to be established in such a way that they cater for the population groups with varied backgrounds, including both the literate and the illiterate. If TVE is conceptualised as a process of equipping every citizen of 15 years and above for some productive activity, regardless of literacy or education level, provision of TVE facilities will tend to be influenced by population characteristics. This approach will require that the TVE institutions also utilize all three official languages (Shona, Ndebele and English), or that specific institutions where each language will be dominant are established, in order to serve the illiterate.

If, however, TVE is conceptualised as a process predicted on some education level or literaracy, the provision and nature of TVE facilities will be based on the distribution of the literacy rates of education levels. This would tend to mean the establishment of more TVE facilities in urban than rural areas, and more such facilities for males than for females. The tendency in Zimbabwe has been to adopt this approach and generally use English as a medium of instruction, as both a heritage of colonialism and a unifying language which also opens the way to international linkages.

TVE programmes based on population charactristics are said to be influenced by social demand or the supply side of labour.

Besides geographical and population characteristics, TVE is also influenced by the occupational and social class structure of society, an aspect discussed in the next section.

## THE INFLUENCE OF OCCUPATIONAL AND SOCIAL CLASS STRUCTURE ON TVE

Just like the geographical and population characteristics discussed above, the occupational and social class structure also tends to influence the nature and provision of TVE in several ways. TVE programmes have to be designed and located in such a way that they readily service the specified population backgrounds. This was the case in traditional societies before the colonisation of Zimbabwe, and remained the case in colonial Zimbabwe. In the latter, TVE programmes were designed and located in such a way that they served the needs of the population groups which were to be empowered economically, socially and politically. Hence, training programmes and institutions were designed and located in areas designated for European settlement, in accordance with the white supremacist philosophy.

Where segregatory philosophy and practices are anathema to the ruling class, other occupation and social variables tend to influence TVE design and location, for the larger population.

Children under 15 years may require some form of TVE concurrent with their elementary education, while adults of 15 years and above may require TVE either concurrent or separate from the academic education system, except the retired/sick/old. Among the adults, the economically inactive, especially students and home-makers, may require long duration TVE programmes, while the economically active, like the unemployed, communal farm workers and other employed, may require short duration TVE programmes. Among the economically active, activity rates, may also influence the nature and location of TVE programmes. Those in rural areas may require TVE programmes which are different from those in urban areas. In the circumstances, the location and structure of TVE programmes tends to be influenced by the distribution of the relevant population groups.

In the light of the above observations, let us examine the position in Zimbabwe, found by the IMS 1993. The study found that 45% of the population were children under 15 years of age, and, therefore, really requiring some form of TVE concurrent with their schooling. Fifty-five per cent were found to be adults of 15 years of age and above and, therefore, requiring programmes either concurrent or separate from the academic education system, except the retired/sick/old. Twenty-five percent were economically inactive people and therefore, requiring long duration TVE programmes, except the retired/sick/or old), while 75% were economically active and, therefore, requiring short duration TVE programmes. In terms of activity, it was found that 72% of the economically active persons were in rural areas, while 28% were in urban areas, thus indicating a possible need for more TVE programmes in rural areas than in urban areas.

When, however, the industrial activity and occupational class structures of the economically active population are considered, the provision and structure of TVE programmes tend to vary from the position dictated by the socio-economic structure of the population. To illustrate this observation, let us again refer to the findings of the IMS 1993. Of the total economically active population, 72% are in agriculture, 11% in services, 6% in manufacturing and 4% in Commerce, while other industrial sectors Mining/Quarying, Electricity/Gas/Water, Construction, Transport/ Communications and Financial Institutions) are each below 2%. Since TVE programmes are intended to service the requirements of industrial sectors, the IMS 1993 findings tend to indicate the need for TVE programmes designed to meet such need. In the above circumstances, a majority of the programmes would service the agricultural sector followed by those for the Services, etc.

On the other hand, if occupational classes are considered alongside the rural-urban divide, a different picture on the provision and structure of TVE programmes would tend to emerge for most of the occupations, except Agriculture and Information. Agricultural programmes, with 99,5% of the economically active population based in rural areas, would dictate the establishment of its TVE programmes in rural areas, while information, with 100% of its population in urban areas. In all the other cases, TVE programmes would have to be provided in proportion to the distribution of the population, with the majority being located in urban areas. As with population characteristics, TVE programmes based on Occupational and social structure of the population are also said to be responding to the social demand or supply side of labour.

In reality, however, the provision of TVE programmes tends to be further influenced by the structure of the economy which is discussed in the next section.

## THE INFLUENCE OF THE STRUCTURE OF THE ECONOMY ON TVE

Since TVE programmes are supposed to service their respective economies, they tend to be generally influenced by the stage of economic development and structure of the economy. An economy which is generally based on primary economic activities tends to foster the development of TVE programmes for that type of economic bias, while economies based on secondary or tertiary economic activities tend to foster the development of TVE programmes with corresponding biases.

In a situation where the primary, secondary and tertiary economic sectors co-exist, TVE programmes tend to be established in corresponding proportions of the three economic sectors. Within each economic sector, the TVE programmes address the respective industrial activities which, therefore, determine the nature and location of such programmes.

Other economic variables which tend to influence the provision and nature of TVE programmes include the proportion of the economic sectors as percentages of the Gross domestic Product (GDP), Gross Capital Formation (GCF), employment and earnings potential. In other cases, the establishment of TVE programmes could be influenced by External Trade considerations which could aim at establishing a favourable balance of payments. This is effected through increasing and improving the quality and quantity of exports and reducing the quantity and types of imports. This objective demands the establishment of TVE programmes which produce the requisite calibre cf local manpower to work towards that end.

In the light of the foregoing observations, let us examine the position in Zimbabwe, as portrayed in the Quarterly Digest of Statistics (QDS 1994) published by the Central Statistics Office (CSO). Based on the provisional figures for 1993 GDP, the primary sector is 21% of the economy, while the secondary and tertiary sectors are 20% and 53% respectively. Contrary to the indications observed in earlier sections, the GDP proportions appear to

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dictate a preponderance of TVE programmes for the tertiary sector, followed by the secondary sector, with the primary sector having the smallest number of TVE programmes. However, when the individual industrial sectors within the economic sectors are considered, the manufacturing sector (Secondary) comes first, with 21%, followed by Agriculture/Forestry (Primary), with 14%, Distribution/Hotels/Restaurants (Tertiary), 9% and Education (Tertiary), 9%. This also tends to require an appropriate proportioning of TVE programmes.

On the other hand, the confirmed GCF figures for 1990 indicate that the primary sector is, 14% of the economy, while the secondary and tertiary sector are 48% and 38% respectively. This appears to dictate that the majority of TVE programmes should be for the secondary sector, followed by the tertiary sector, with the primary sector, again, having the smallest number of programmes. When the individual industrial sectors within the economic sectors are considered, the manufacturing (Secondary) industry, again, comes first, with 27%, followed by Construction (Secondary), 15%, while Agriculture (Primary) comes third, with 11%. This tends to point to need for a preponderance of TVE programmes for the manufacturing industry, followed by the Construction and Agricultural industries respectively.

If the employment potential is considered, the 1993 provisional employment figures indicate that the primary sector is 30% of the economy, while the secondary and tertiary sectors are 23% and 47% respectively. This tends to mean that the majority of TVE programmes should be for the Tertiary sector, followed by primary sector with the secondary sector having the smallest number of programmes. If, however, the employment potential is considered on the basis of the individual industrial sectors, the Agriculture (primary) industry ranks first with 26%, followed by Manufacturing (Secondary) and Education (Teacher Training) (Tertiary) with 15% and 9% respectively. This consideration tends to point to a need for a preponderance of TVE programmes for Agriculture, followed by manufacturing and Education programmes.

On the other hand, if employee earnings are considered, the primary sector becomes the smallest with 12%, the secondary sector, being second with 29%, while the tertiary sector remains the largest with 59%. This appears to mean that the majority of TVE programmes should be established for the Tertiary sector, followed by the Secondary sector, with the primary sector having the smallest number of programmes. When, however, consideration is given to the earning potential of individual industrial sectors in each economic sector, the manufacturing industry (Secondary) ranks first with 23%, followed by Education (teacher training) (Tertiary) and the Distribution/Restaurants/Hotels (Tertiary) industry, with 15% and 10%. This distribution tends to indicate a need for the majority of TVE programmes to service the manufacturing industry and followed by training of educators, with programmes for the Distribution/Restaurants/ Hotels coming third. TVE programmes for Transport/Communications with 8% come fourth, while those of Agriculture,

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Finance/Insurance/Real Estates and Public Administration come fifth with their 7% share of the economy.

On the other hand, the country's External Trade Performance may also influence TVE programmes in several ways. The balance of payments may be favourable, but the country may wish to boost its experts by improving the quality and variety of its exports, while also reducing the need for certain types of imports. Alternatively, the balance of payments may be unfavourable and, therefore, the country may want to improve its exports by beneficiating and diversifying its export products, alongside introducing import substitution technologies. This can be effected through raising the quality of manpower who could also facilitate the introduction and optimisation of the requisite technology and establishment of import substitution technologies.

As far as Zimbabwe is concerned, the unfavourable balance of payments for the period 1989 - 1992 appears to indicate a need for the development and provision of TVE programmes to facilitate the beneficiation and diversification of its export products, while also developing or introducing import substitution industrial activities. This will require a close study of areas with good potential for either industrial expansion of existing activities or establishment of new industrial activities, as reflected by both the nominal capital increases of existing companies. According to the October QDS 1994, Agriculture/Forestry, Mining/Quarrying, Manufacturing, Construction and Distribution/ Restaurants/ Hotels industries feature, in terms of both registered nominal capital of new companies and registered increases in nominal capital of existing companies. Registered nominal capital of new companies rose by 275% between 1986 and 1990, while that for increases in capital of existing companies rose by 321% during the same period. These indications should really influence the development and provision of TVE programmes, for purposes of preparing appropriate local manpower for such industries.

Other economic variables pertinent to the development of TVE programmes include the interest rates, inflation rate, unemployment rate and the economic growth rate. These factors variously, influence TVE programmes, whether industry - or institution - based, in both direct and indirect ways.

Where high interest rates tend to deter business activities, opportunities for the implementation of industry - based or joint industry - institution TVE programmes tend to be correspondingly reduced. Where the inflation rate is high, the costs of implementing TVE programmes correspondingly rise in both industry and institutions, and thus tend to reduce both the training opportunities and the numbers of TVE beneficiaries. On the other hand, a vibrant economy increases and diversifies economic activities which tend to correspondingly increase and diversify TVE programmes. Where there is a rather high unemploymnt rate, the nature of TVE tends to be affected by the shortage of industry - based attachment opportunities. The design and provision of TVE tend to be dominated by the considerations of grooming the beneficiaries for employment creation activities, while the venue is generally the institution itself.

This appears to have been the fate of Zimbabwe during the period 1988 and 1994. According to the October QDS 1994, Discount Houses call money interest rate rose by 358% from 8% in 1988 to 35% in July 1994, with a high peak of 38% in June 1993. Financial Banks interest rate rose by 237%, from 9% to 30% during the same period, with a high peak of 37% in May 1993. According to the Standard Chartered bulletin, *Business Trends* n°. 48 of January 1995, the average annual inflation rate based on the consumer price index (CPI) rose by 87% from 15% (1980 - 1985) to 28% (1990 - 1994), with a peak of just under 50% in September 1992. This bulletin also observed that the GDP growth rate per annum dropped by 70% from 3.3% (1980 - 1985) to 1% (1990-1994), while the per capita GDP dropped by 15% from a record high of Z$550 (Constant 1980 $Z) in 1973 to a record low of Z$470 in 1993. As far as employment is concerned, the October QDS 1994 reported that 187,800 new employees were hired in the economy during the period of 1986 to 1993. This represents an overall increase of 17,84% of the 1985 empoyment level, or an annual average employment rate of 23,480 (12,50%) for the 8-year period.

Given the combined effects of these factors and the rather depressed performance of the economy, the CSO IMS 1993 found that Zimbabwe had unemployment rates of 32,53% in rural areas, 40,25% in urban areas, and 7,88% overall. This has affected the TVE in many ways. A number of on-going courses have had to be suspended or cancelled, while the introduction of some new ones had to be deferred, because of shortage of public funds for recurrent expenses of TVE programmes. In some cases, enrolments have to be kept at a minimum, thus constraining the capacity of TVE programmes to absorb increasing numbers of school leavers. It has also become rather problematic to arrange industrial placement of students and graduates from colleges and universities, because of constrained industrial activities. Overall, the tendency has been for TVE programmes to generally rely on school, college or university-based activities, as some students have had to complete their programmes, without the necessary adequate industrial exposure.

In reality, however, the various factors examined in the preceding sections merely influence TVE. What happens in practice is determined by the State and individual organisations, guided by their respective aspirations, policies and resources at their disposal. The rest of this paper now focuses on how the practical situation in Zimbabwe has interfaced with the factors discussed above.

## THE GOALS OF THE TVE SYSTEM UNDER THE VARIOUS GOVERNMENT STRUCTURES AND POLITICAL GOALS

Settlers appreciated that both general education and TVE constitute the soure of empowerment of the individual and, therefore, his community. To that end, they ensured that the colonial state designed and established general education and TVE system for their dependants, while generally restricting African education to purely providing basic literacy. Generally, they even left it to Missionaries who could use the education system to facilitate propagation of missionary work. The only meaningful local TVE programme established during the direct rule by the Governor was the apprenticeship programme establihed under the Masters and Servants Command before 1900. This set-up ensured that the settlers apprenticed some of their own dependants. Otherwise, they generally arranged for most of their dependants to return to either South Africa or their home countries for higher education and other formal TVE programmes.

When self-rule was established in 1923, the settlers viewed the role of education in two major complementary ways. Firstly, they viewed education as a process which could simultaneously make Europeans more clever and more effective as the rulers, while it made Africans more stubborn and rebellious. Secondly, education could also create conditions of competition between Europeans and Africans in every sphere of national life. Hence, in accordance with their white supremacist philosophy, they established a dual system of education, with one system for the Europeans and the other for Africans. The European education was designed and organised in such a manner that its quality and products were of international standards and also gave them comparative advantage in the various aspects of national activities. On the other hand, the African education system was designed, not organised, in such a manner that its quality and that of its products were supposed to be of second rate status. Africans educated under the system were supposed to look up to every member of the European community for wisdom, leadership and guidance, and to feel indebted to the colonialists and the British Crown.

To achieve the settler objectives in education, a number of strategies were adopted. European education was placed under the Ministry of Education, while African education was placed under the department of African (Native) Affairs. European education was made free and compulsory, with TVE being left to be organised by individual or groups of settlers, under the Industrial Conciliation Act (1934) which recognised only European industrial and workers organisations. This accounts for the origins of Harare Polytechnic and Bulawayo Polytechnic as private technical schools ; on the other hand, the Department of African Affairs established only a few token elementary schools, while leaving missionaries to establish the rest, according to their resources. In both cases, appropriate fees had to be paid, thus ensuring that only a few Africans with the means had access to the few schools for the controlled education. The few literate Africans successfully coming out of the system were really to be used as buffer between the settlers and the African majority. They were also to be used as controlling agents who take instructions in such capacities as clerical assistants/clerks, soldiers, police, jail guards, interpreters and domestic workers. For purposes of African TVE, very few public and missionary institutions were established to train an even smaller number of the literate Africans as elementary teachers, builders, carpenters, agricultural demonstrators, nurses, medical orderlies, health assistants and priests. These vocations were to enable the graduates to work more affectively among the Africans.

In the wake of increased numbers of literate Africans ; both within and outside the country under missionary sponsorship, the settlers gradually accepted the need for higher education for Africans. The survival of the settlers was viewed as dependent on a few highly educated Africans who could also be used to control the increasing members of otherwise hostile educated Africans. This led to the opening of State African secondary and high schools, like Goromonzi High School, but negligibly affected the racist thrust of the TVE system.

With the intervention of the Federation of Rhodesia and Nyasaland under its philosophy of establishing the relationship of "the horse and its rider", the settlers established a few more primary, secondary and high schools including Fletcher High School (1957), while the Federation itself established a multi-racial university, the University College of Rhodesia and Nyasaland.

As far as the TVE was concerned, some technical subjects were introduced in schools and a few technical secondary schools established in the African education system. The apprenticeship programme was placed under the Apprenticeship Act (1959) which established the Apprenticeship Advisory Board and was directly administered by the State to ensure that European interests were upheld in the production of skilled manpower for industry. The general objective of this time was to groom some agreeable Africans for token integration into the decision making echelons of the settler system, as a cushion for settler domination.

To ensure that the rather enlarged system of secondary and higher education was restricted to a select few Africans, fees were maintained while the transition from primary to secondary schools was restricted to 12,5% of those leaving the primary education level. On the other hand, in order to give and maintain the upper edge for Europeans over Africans, formal TVE was integrated into the European education system, including establishment of technical high schools. The products of the TVE had generally assured transition from school to either employment or further education and training, especially through the apprenticeship programme. Hence, while the European school leavers were deliberately groomed for the world of work, those from the general African education system were generally academic people. during the period 1964-1979, the goals of education and training moved like a pendulum. Initially, there appeared to be a drastic reversal of the goals set under the Federation to the pre-Federation era of outright white supremacy as the ultimate goal of education and training, under UDI. A trickling of TVE programmes, like Luveve Technical School, which had been introduced to facilitate the integration of a few Africans into the technical disciplines were, in fact, scrapped, as they appeared to introduce African competition with Europeans in industry. These were later replaced with F2 secondary schools which were designed to produce purely semi-skilled people who would service the mundane requirements of the Africans settled in areas designated for either the informal sector or formal employment as semi-skilled workers in order to pay them lower wage rates than Europeans.

Concurrently, several other strategies were also adopted to strengthen the European education system so as to uphold their domination over the Africans. TVE, in particular, was re-affirmed as an instrument for empowerment, and, therefore, to have access to it restricted to Europeans only. To re-establish that position, TVE programmes were improved and increased within the European education system. Individuals and individual organisations were liberally permitted to establish private TVE institutions. Harare (Salisbury) Polytechnic and the Technical College (Bulawayo Polytechnic) were formally recognised as Government training institutions which would also service the apprenticeship programme. The apprenticeship programme itself was strengthened through the promulgation of the Apprenticeship Training and Skilled Manpower Development Act which also established the Apprenticeship Authority. This body was to ensure that the apprenticeship programme produced the requisite skilled workers for industry, that all Europeans seeking to be apprenticed were accordingly accommodated and the programme would generally remain a preserve for Europeans. Through the Land Tenure Act, the State actively discouraged employers and private institutions from engaging or enrolling Africans in institutions located on land designated for European settlement. During the last five years of the UDI era, the goals of TVE were further modified, given the exodus of European skilled workers, the drastic fall in their immigration into the country and because of the prevalent war situation itself in the country. The apprenticeship programme, in particular, was used to achieve several other objectives, besides the continuous production of skilled workers for designated trades/occupations in industry. The programme was used as a bait for the war effort, as youngsters wishing to join apprenticeship were given time remission equivalent to their national service with the defence forces, before joining the programme. Those already in the programme became a readily available recruiting ground for national service. Further, it was made a jumping pad for employment and further training within and outside the country and a source for survival, not domination skills in a competitive world. It was also made the main mechanism for replacing the emigrating skilled workers.

With the promulgation of the Vocational Education and Training Act (1978), formal skills upgrading for Africans was established in order to sustain local skilled manpower supply in industry. Simultaneously, TVE programmes became providers of both employment and business in themselves, while those who completed the programmes easily secured operating licences to practice their vocations under local authorities.

With the advent of independene, the order recognised the empowerment role of education and training. To that end, the racilistic orientation of education and TVE was replaced with non-racial objectives to service the commitment to establish an egalitarian society based on African majority rule. Further, TVE was to service the manpower needs of both the formal and informal employment sectors. To that end, the Manpower Planning and Development Act was enacted in 1984, and vocationalisation of secoadary education was adopted as a national policy in 1987. These changes were followed by the adoption of the policy of the Rationalisation of TVE in 1990, so that the system could service the nationally recognised manpower required by both the formal and informal sectors (Demand side), and also absorb increasing numbers of school leavers and workers seeking to acquire basic or advanced skills (Supply side). The ultimate objective is to produce a pool of various categories and levels of manpower who can both create employment and attract investors in rural and urban areas. TVE is thus expected to provide not only the appropriate know-how but also the necessary entrepreneurial orientation.

To achieve the various objectives, appropriate TVE structures were established in accordance with the prevailing state philosophies. The next section discusses the nature of these TVE structures.

## THE GENERAL TVE STRUCTURES ESTABLISHED TO SERVICE TVE OBJECTIVES (1890-1995)

In the course of the country's history, TVE structures, as much as those of the general education system, evolved with time and changes in the national philosophies. Until the advent of independence in 1980, there existed a dual system of TVE; with the one system serving Europeans, including Asians and Coloureds, and the other serving Africans, in line with the white supremacist philosophy. Deliberate efforts to establish a unified structure were instituted at independence under the egalitarian philosophy. Let us examine these systems, in turn.

### *TVE Structures before Independence*

For the European community, TVE generally consisted of the industry-based apprenticeship training and vocational streams integrated into the school system at the secondary school level (post-standard V) when the child was 12 years of age.

### *Apprenticeship Training*

This was the main TVE programme which produced skilled workers for the modern sector (Industry and Commerce). During the period 1890 - 1934, the programme took 5 to 10 years. Where formal courses were available, apprentices were free to either attend relevant vocational streams at appropriate schools or take correspondence courses, both of which options led to the appropriate National Technical Certificate of the Union of South Africa. The programme was generally open to both adults and youngsters with elementary education.

From 1934, the period was generally fixed at five years. In 1968, attendance of basic college courses was made mandatory for most apprenticeable trades/occupations, except those which were considered as *Fringe Trades.* The college courses were offered on full time (39 weeks), block-release (3 x 6 weeks) or day-release (one or two days per week). In certain cases, advanced courses were also available for those who had distinguished themselves at the basic level. These courses variously led to the Rhodesian, South African and United Kingdom technical and professional certificates some of which could even be obtained by correspondence.

At the same time, minimum academic entry requirements for apprenticeship were variously prescribed, based on the Rhodesia Certificate of Education (Lower and Higher) or the Associated Examining Board 'O', 'M' or 'A' level examinations. A maximum age restriction of 21 years was also introduced.

However, to ensure that no European youngster or adult was prejudiced by these prescribed entry requirements or college courses, some mechanisms for legal exemption were put in place. Youngsters could be accepted for apprenticeship on the basis of the headteacher's asessment and recommendation, while adults could be accepted as major apprentices, on the basis of the employer's recommendation. Those who failed their college courses were permitted to continue with their apprenticeships, on the basis of statutory trade tests which were less theoretical than formal college courses. those who completed apprenticeship training were also issued with journeymen certificates by the national industrial councils.

### *Institution-Based TVE*

For purposes of institution-based training, schools were established on a comprehensive system which had two streams at secondary education level. The one stream served the academically gifted students who were to progress up to degree level, while the other stream (TVE) was for the less academically-gifted students who were to be prepared for employment or further training after their secondary education. The secondary system (TVE) varied from 3 to 5 years, to ensure that no student left school before 16 years of age or before he/she had acquired some formal qualification in an area of specialisation at an appropriate level. The qualifications at appropriate levels included the Junior Certificate of the Union of South Africa, College of Preceptors Certificate, National Technical Certificate of South Africa, City and Guilds of London Certificates, Associated Examining Board (UK) '0' and 'M' level certificates, Further Education Examination Board Certificates (Rhodesia) and several others issued by private professional bodies in UK and South Africa.

Other formal courses were offered through both public and private institutions for education (teachers), agriculture (Land Development Officers), and health (State Registered Nurses and Health Inspectors) and technical colleges (for technicains and other business occupations). The course durations generally ranged from a few months to two years. Certificates were issued for both group and single subjects.

### *The Structures for the African Society*

For the African society, TVE structures also included industrial training schools and integrated schools, mostly at primary level, until 1966 when separate junior secondary (F2) schools were established as distinct from academic secondary (F1) schools. Alongside the school system was the industry-based skills upgrade training.

### *Industrial Training Schools*

These institutions offered courses in duration from one to three years, after varying academic qualifications which were steadily raised from standard III (5 years of elementary education to '0' level (12 years of basic education). While some institutions stood on their own like Domboshawa and Tjolotjo for agricultural demonstrators and health assistant inspectors, others were attached to hospitals for the training of nursing assistants, and medical orderlies. These institutions generally devised their own courses and issued their own certificates.

### *TVE in the School System*

Within the school system, the curriculum was devised in such a way that practical subjects were an integral part of the education process, right from primary school, without a system of streaming.

The training of teachers started along these lines, until separate teacher training institutions were established. Within the integrated system, teacher training periods ranged from 2 to 3 years, but when separate teacher training institutions were established, the period was generally fixed at 3 years. Courses for teachers included those who were to teach at lower primary (primary teachers lower), upper primary (primary teachers higher), academic secondary teachers (T1) and junior secondary teachers (T2).

### *TVE in Junior Secondary (F2) Schools*

According to the Plan for Education announced on 20/4/1966, junior secondary (F2) schools were designed to absorb 37.5% of primary school leavers qualifying for secondary education, while academic (F1) schools were to absorb 12.5%. F2 school courses were to take up to four years. Graduates of these schools were intended to generally fit into employment in African areas or in industry and commere as unskilled or semi-skilled workers. The other small group from these graduates could seek further training in industrial training schools or as teachers for practical subjects. Their certificates were issued by the Ministry of Education. They were not expected to acquire any further academic qualifications in the formal education system. However, in the decade preceding independence, F2 graduates were also reluctantly accepted for apprenticeship training.

### *Informal Structures of the TVE*

To supplement the formal structures, a variety of informal TVE structures were established through private sources; Individual employers devised private skills upgrading programmes for their workers. In the late seventies, the automotive industry established industry upgrading centres in Bulawayo and Harare. The courses were of short durations averaging a couple of weeks at a time. Entry into these programmes was open to people with a variety of academic backgrounds, ranging from lower primary up to '0' levels.

Alongside the upgrade training programmes, there existed a plethora of registered or private training institutions offering short duration courses by either direct tuition or correspondence. The courses generally ranged from a few months up to a year in duration. They were again open to students with a variety of academic backgrounds. Certification for these courses varied from formal qualifications recognized nationally or internationally to informal qualifications issued by the individual institutions.

### *TVE Structures since the Advent of Independence*

Following the advent of independence in 1980, the diverse TVE structures, as with all other national structures, had to be merged into a single rationalised system.

#### *Industry-based Training*

#### *a)* Apprenticeship Training

The apprenticeship training period was generally reduced from 5 to 4 years, with periods in some trades/occupations even ranging between 2.5 and 3 years. Further, the minimum academic requirements for entry into apprenticeship were generally raised to '0' levels (11 years of basic education). The maximum age restriction of 21 years and the principle of exemptions from prescribed conditions of apprenticeship were virtually eliminated, while a new condition of single citizenship requirement was introduced.

#### *b)* *Skills Upgrade Training*

Formal short course ranging from 6 to 12 weeks at a time were introduced at the industry training centres which were taken over by the state and designated as vocational training centres. The courses were designed according to skilled worker class levels ranging from Skilled Worker Class IV (the lowest), III, II and I (the highest). To mark the completion of each level, the trainee has to take an appropriate trade test for which a commensurate skilled worker qualification certificate is issued by the State. Entry into these courses is open to all workers already employed in the relevant trades for at least three years.

### *Formal TVE in Training Institutions*

Whereas there were only 2 technical colleges and 8 teachers training colleges at independene, there are 8 technical colleges, 15 teachers colleges, 2 vocational training centres and a management training bureau controlled or supported by the State. There are over 150 state-registered privately owned training institutions either in industry or operating as profit ventures. Both public and private technical and vocational institutions offer a combination of nationally recognised and specialised short courses.

Most formal courses in the technical institutions have durations ranging from one year to two years, while those for teacher training and other professions (health and agriculture) range from 2 to 4 years. Short courses generally range from a few weeks to several months, especially in private technical and vocational institutions.

General minimum academic requirements for entry into the formal courses are '0' levels in specified subjects, a basic relevant qualification and/or relevant experience, while entry into the short courses is generally open, subject to interest, experience or ability to pay for the course.

Courses are offered on full-time, part-time, bloc-release and day-release basis.

### *TVE in the School System*

Within the school system, the integrated approach has been adopted, with practical subjects being offered at secondary level. F1 and F2 secondary schools have been merged. Each child is required to do at least one practical subject from Form 1 (8th year) to Form IV (11th year). Some schools, especially those previously established as comprehensive schools or under the Zimbabwe Foundation for Education with Production (ZIMFED) have already started offering the National Foundation Certificate (NFC) courses from Form III to IV. The overall intention is to equip and staff every secondary school to offer NFC courses. The idea is that students acquiring the NFC should be able to either secure employment (formal or informal) or proceed with further training at National Certificate (NC) level in the formal technical and vocational training institutions.

Concurrently, the principle of introducing Pre-Vocational Certificate (PVC) courses for Forms I and II has also been accepted by Government. As with NFC, it is expected that PVC courses with the normal academic courses for the Junior Certificate (JC) level, and thus modify the current purely academic courses. As with NFC, it is expected that PVC holders should be able to either secure employment at an appropriate level (Formal or informal) or proceed for further training at NFC level.

### *Informal TVE*

To take care of the training requirements of the generality of school-leavers not qualifying for the formal courses, a number of Youth Training Centres (YTC) were established. These centers absorb trainees with varied academic levels to follow common courses for average durations of two years.

The courses are designed by the individual centres to facilitate the absorption of their graduates into both formal and informal employment. In some cases, some of the courses have been modified to qualify for national examinations and trade testing. There is thinking to further modify the YTCs into Enterprise Training Centres whose graduates should be equipped to create employment by establishing their own enterprises as individuals or co-operatives.

## ADMINSTRATIVE AND SUPERVISORY STRUCTURES AND OPERATION OF TVE

The administrative and supervisory structures and operation of TVE in Zimbabwe have also evolved in tandem with the evolution of the national philosophy and legislation.

### *The Evolution of Adminstrative and Supervisory Structures for TVE*

#### *a) Apprenticeship Training*

As the main TVE programme established with the arrival of the European settlers in the last decade of the 19th century, apprenticeship training was effected under the Masters and Servants command. Under this law, contracts of apprenticeship were registered and loosely supervised by the magistrate. Since there was need to improve the supervision of the system, the apprenticeship programme was subsequently placed under the Industrial Conciliation Act (1934). Under this law, the apprenticeship contracts were registered and supervised by National Industrial Councils (NIC) which were accountable to the Ministry of Labour and Social Welfare. Because of disagreements between Trade Unions and Employers Organisations in the NICs, the Apprenticeship Act (1959) transferred the registration and supervision of the apprenticeship programme to the Ministry of Labour and Social Welfare. The Ministry was to be advised by the Apprenticeship Advisory Board consisting of representatives of Trade Unions and Employers Organisations. To overcome bureaucratic and other operational problems associated with the arrangement, the Apprenticeship Training and Skilled Manpower Development Act (1968) repealed the Apprenticeship Act (1959) and established the Apprenticeship Training and Skilled Manpower Development Authority to register and supervise the programme. The Authority was, however, to remain accountable to th Ministry of Labour and Social Welfare. For the effective performance of its duties the Authority was serviced by the Secretary of the Apprenticeship Authority who was also the Registrar of apprenticeship, as a civil servant supported by a team of inspectors.

In 1978, the Vocational Education and Training Act established the manpower Development and Training Authority (MANDATA) which was to have ultimate responsibility for overall manpower development programmes including skills upgrade training and the apprenticeship programme itself. This body was also to be serviced by the Secretary who, as Director of Vocational and Technical Training, was also a civil servant. Further, it was also to be accountable to the Ministry of Labour and Social Welfare. The Act also empowered the Minister to establish and operate technical and vocational training institutions, as well as register and inspect private ones. However, MANDATA concentrated on skills upgrade Training, while the Apprenticeship Authority retained its status until the advent of independence.

At independene, the two bodies were made accountable to the Ministry of Manpower Planning and Development which subsequently made MANDATA responsible for apprenticeship and later assumed full responsibility for all manpower development functions. This was done under the Manpower Planning and Development Act (1984) which also replaced MANDATA with the National Manpower Advisory Council (NAMACO). It further established a civil service post of Director of Vocational and Technical Training. The administration of the Act was later assigned to the Ministry of Labour Manpower Planning and Social Welfare from which it subsequently moved to the Ministry of Higher Education in 1988 to date. In 1994, the Act was revised to also include the administration of teacher training programmes, while also abolishing the posts of Registrar of Apprenticeship and Skilled Manpower and Director of Vocational and Technical Training.

### *b) Formal TVE Administration and Supervisory Structures*

As with the apprenticeship programme, the administration and supervisory structures of the formal TVE programmes also changed with the evolution of the national philosophy.

As part of the formal education system, TVE initially fell under the administration of the different missionary organisations, such as the London Missionary Society, the Anglicans, Wesleyans (Methodists), Roman Catholics and the Dutch Reformed Church, up to the begining of the Twentieth Century.

Followng the establishment of Southern Rhodesia, TVE as part of the education system, was jointly administered and supervised by the missionaries and the State. On its part, the State established the education department which generally controlled European education and the Department of native Development which controlled African Education.

When the Federation of Rhodesia and Nyasaland was established in 1953, European education fell under the Federal Ministry of Health and Education while African Education fell under the Southern Rhodesian Prime Minister who was also the Minister of African Education.

Following the demise of the Federation in 1963, the two departments (African and European) were brought together as distinct units under the Ministry of Eduction . Both the Salisbury Polytechnic and the Technical College in Bulawayo fell under the Ministry of Education until 1978 when they were transferred to the Ministry of Labour and Social Welfare under the Vocational Education and Training Act.

Following the advent of indepndence in 1980, school-based TVE fell under a single system controlled by the Ministry of Education whose designation changed to Ministry of Primary and Secondary Education and later to Ministry of Education, Culture and Sports.

Simultaneously, the administration and supervision of technical colleges moved to the Ministry of Manpower Planning and Development, then on to the Ministry of Labour, Manpower Planning and Social Welfare and finally to the Ministry of Higher Education in 1988. The Manpower Planning and Development Act (1984) established the National Manpower Advisory Council (NAMACO) to advise the Ministry on manpower development programmes in general, while the revised Act (1994) also transferred the control and supervision of teacher training from Ministry of Education, Culture and Sports to the Ministry of Higher Education.

To effectively administer and supervise the education system, a system of inspectorates was established and strengthened over time. On the other hand, the monitoring of TVE institutions was left to the Director of Vocational and Technical Training and his staff who also register and monitor the operations of private technical and vocational education institutions. Within the Ministry institutions themselves, College Advisory Councils and Departmental Advisory Committees have been established to ensure that college programme reflect the needs of the employment sector. These organisations work very closely with the heads of colleges and heads of departments respectively.

### c) *Administration and Supervision of other TVE Programmes*

Concurrent with the developments in the formal TVE structures, other programmes were established under other Ministries. The Ministry of Agriculture established and controlled various categories of colleges of agriculture. The Ministry of Health established and controlled several health training centers attached to some hospitals, and was assisted by the Health and Allied Professions Council in its supervisory responsibilities. On the other hand, the Ministry of Youth, Sports and Culture and later the Ministry of Political Affairs, Youth and Women's Affairs and currently the Ministry of National Affairs, Employment Creation and Co-operative Development established and controlled Youth Training Centres.

The Institutions have their own heads of institutions who work closely with the training departments in their respective Ministries.

Steps are also being taken to link the institutions with the working world to ensure that the programmes produce graduates with the skills required in their respective industrial sectors. Some of the linkages include requiring applicants to initially work in the sector or go for industrial attachment during the training period.

## FINANCING TECHNICAL AND VOCATIONAL EDUCATION

The financing of the TVE has generally tended to be shared among the State private and donor resources. These can be classified as : a) Public funds ; b) Semi-Public funds ; c) Private funds ; and d) Donor funds.

### *Public Funds*

Here public funds refers to the annual allocations provided for in the State budget. In view of the spread of TVE administration and supervision across ministries and the pervasive nature of the budgeting system it has not been easy to quantify the State contribution to TVE, without risking a serious understatement.

Public funds have supported the establishment and maintenance of the integrated education system under the Ministry of Education and Culture and the training institutions and programmes under the Ministries of Higher Education ; Health and Child Welfare ; Lands, Agriculture and Resettlement ; National Affairs, Co-operatives and Employment Creation ; Mines ; Tourism and Environment ; Public Service Labour and Social Welfare ; Information ; Post and Telecommunication ; Home Affairs and Defence.

On the other hand, the allocations are split between those funds directly utilized at the institutions or for the programmes and those utilized by the Ministry itself for the development and supervision of TVE institutions and programmes. For instance, it is not easy to determine allocations for TVE in schools, while focusing on technical and vocational institutions expenses would leave out expenses on industrial training, curriculum development, examinations, distance education and supervision of private colleges.

In addition to the infrastructure and programme development and maintenance, public funds provide direct support to certain welfare training institutions and to the majority of unsponsored students at national institutions, through loans and grants as well as allowances for those students not eligible for the former. Hence, any attempt to quantify the State contribution to TVE should capture all those expenses.

### *Semi-Public Funds*

Semi-public funds refers to those resources levied by law or administrative regulations from members of the public for specified purposes which are neither adequately nor completely catered for under State allocations. In this regard, there have been two types of semi-public funds : training fund at national level and amenities fund at the institutions.

### *Training Funds*

The idea of a national training fund started with the establishment of the Apprenticeship Training fund in terms of the Apprenticeship Training and Skilled Manpower Development Act (1968). The fund was established to sustain the common effort of industry to produce skilled workers required by industry in general, whether or not any specific industrial sectors or employers were involved in apprenticeship. A per capita levy was imposed on every employer who utilized the specified skills, whether or not they were employing qualified skilled workers. The fund was then used to pay college and examination fees as well as the wages and allowances of apprentices while they were attending a mandatory college course. It also met the travel, subsistence and boarding and lodging expenses for apprentices attending such courses.

In order to take advantage of the target pool of experienced semi-skilled workers who had a good potential of staying in the country, another manpower development fund was established in terms of the Vocational Education and Training Act (1978) based on O.1% of the employers's payroll. The fund was generally applied to meet the expenses of establishing and maintaining skills upgrade training programmes.

With the advent of independence, the two funds were amalgamated into the Zimbabwe Manpower Development Fund (ZIMDEF) established in terms of the Manpower Planning and Development Act, 1984. The levy on employers was fixed at 1% of their wage - bills. ZIMDEF has not only taken over the full responsibilities of its predecessors but also modified the approach in order to increase its impact. It also pays the prescribed minimum wages of apprentices in the first two years of their apprenticeship, loans and grants for certain categories of students attending specified courses, industrial attachment allowances ($800 per month) for certain institutional trainees, including University students, rebates and grants to employers involved in approved training, and special part-time rates for part-time lecturers at colleges.

It has also considerably supplemented the efforts of the national fiscus by putting up instruction and residential facilities for both students and staff at the Ministry's technical and vocational training institutions. In line with the approach, it has also acquired major laboratory and workshop equipment for the colleges and hand tools for trainees who are also afforded advances or interest-free loans for the purchase of the prescribed tools.

The application of the Fund is effected by Ministry in close consultation with NAMACO which represents industry and commerce and the workers

### *Amenities Funds*

These are special funds levied from students by the institution itself for purposes of the welfare and training/education of the students at such an institution. The funds also get annual grants from State Allocations for grounds maintenance. The funds are also variously designated as Special Fund at teachers colleges and General Purpose Fund at schools. Specific rates are fixed by Treasury from time to time. The Finance Committee at each institution advises the principal on the application of the Fund.

### *Private Funds*

TVE has been substantially supported with private funds flowing in from various sources.

### *Individual Contributions*

Individual contributions originate from two main sources : the student and individual investor.

#### *a) Students contributions*

Individual students pay the prescribed tuition, examinations and other fees required for their studies at an institution. These are the ones who prefer not to take advantage of the State loan scheme introduced from January 1994, or students attending institutions or courses for which the loan scheme is not yet applicable.

#### *b) Individual Contributions*

Some individuals have pooled their private resources to establish technical and vocational training institutions as business ventures to be operated at a profit. Many of such private training centres have been established and registered by the State.

### *Parents Contributions*

Besides contributing to the General Purpose Fund at schools, parents also pay tuition and the Parents/Teachers Association or School Development Committee levy which is far higher than the former contributions. This levy fund has tended to be applied to boost the instructional capacity of the school, especially in practical subjects, besides generally assisting in the creation of a conducive learning environment at schools.

### *Industry Contributions*

In certain cases, industrial sectors like Hotel and Tourism, Motor Trade, Plastics and Ruber, Clothing and Textile, Mining, and Leather, have pooled their resources to either establish or foster the establishment of training centres or schemes for their respective industrial needs. The hotel industry had established a Hotel Industry Training Board and a Training Levy Fund, before the establishment of ZIMDEF. The Motor trade engineered the designation and operation of industry training centres which were subsequently established as Masasa and Westgate Vocational Training Centres. The Clothing and Textile Industry supported the establishment of the Institute of Textile Technology at Danhiko Training Centre. The Mining Industry fully backed the establishment and operation of the school of Mining, while the Plastics and Rubber Industry supported the introduction of their industry courses at Bulawayo and Harare Polytechnics. The Leather Industry has sustained the operations of the Leather Institute.

Some of these industries also sponsor prizes and awards for excellent performance in relevant courses at the technical colleges.

### *Employers Contributions*

Some individual employers have set aside funds for the establishment and maintenance of their own training centres, while others have schemes which pay or reimburse fees paid by their workers for certain courses taken at training institutions. Other employers also sponsor prizes and awards for students with outstanding performance in certain courses, especially those relevant to their organisations. In some cases, employers have also even released some of their workers to either attend courses or offer their specialist services at national training centres, without charging any fees, but paying the worker his/her full pay. Instead, those who employ apprentices pay them wage rates prescribed by the law or even higher, while those who accept students for industrial attachments have tended to pay them allowances.

Other employers have incurred expenses by accepting trainees who have not been as productive or have even damaged some of the equipment and tools.

Union Carbide built and equipped the Kwekwe Technical College which was then donated to Government on a turn-key basis.

### *Contributions of Non-Governmental Organisations*

A good number of non-profit making organisations, such as the Zimbabwe Foundation for Education with Production (ZIMFEP), Church organisations, etc., have established training facilities which have been approved by Government. As encouragement, the State is paying them annual grants to supplement the self-help efforts of those organisations.

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There is no mechanism currently in place to capture the amount of annual outlay which is being incurred by private sources in TVE. From the preceding examination, however, it can be appreciated that considerable resources have been invested from private sources.

### *Donor Funding*

The removal of the international economic sanctions imposed by the United Nations against Southern Rhodesia and the birth of the State of Zimbabwe established the full membership of the country in the international community which readily came forward to support and sustain the new social order. This support greatly boosted the TVE, just like other sectors of the economy. Several donors came up with packages for the TVE sector.

### *USA Contribution*

Besides facilitating the training of Zimbabweans in USA and recruitment of specialist US nationals as lecturers, through the Zimbabwe Manpower Development Programme (ZIMMAN), the US, through USAID, further came up with the Basic Education and Skills Training (BEST) programme worth US$45 million. The flexibility and generosity of the programme enabled the country to reconstruct and expand the general education and TVE infrastructure. It was BEST which provided greater part of funding for the establishment of the harare Institute of Technology (HIT), Belvedere Technical Teachers College, Mutare Technical College, Masvingo Technical College and Gweru Technical College? In certain cases, it also provided generously equipment for these and other training institutions and accordingly facilitated the recruitment of specialists lecturers and training of locals within and outside Zimbabwe. The introduction of the B. Tech programme at Harare and Bulawayo Polytechnics was predicated on the BEST programme, with the hope that the graduates would also be the material for lectureships in the technical colleges.

### *German Contribution*

Germany, through the German Agency for Technical Co-operation (GTZ), gave a resounding boost to vocational training, through the National Vocational Training and Development (NVTD) programme which has been sustained for well over a decade. Millions of Zimbabwe dollars have been expanded on equipment acquisition and specialist staff supply for Masasa VTC, HIT and Masvingo Technical College, besides other funds made available to the private sector for the same purpose. Considerable funding has also been made to staff development within Zimbabwe and in Germany itself. This has included institution-based staff and ministry officials dealing directly with the programme. It has also sponsored several workshops which have greatly boosted the country's appreciation of the role of vocational training in TVE.

German assistance has made its mark throughout the system by boosting skills upgrade training, curriculum development, and the institutional training programme. Some of the staff from the programme have since moved to other non-programme institutions which have thus also benefitd from the NVTD programme, like Mutare Technical College and Westgate VTC, for example.

### *Canadian Contributions*

Through the Canadian International Development Agency (CIDA), several Canadian specialist organisations like the World University Service (Canada) (WUSC), Ontario International, and Salassan Associates, significantly boosted TVE in Zimbabwe. The Canadian assistance has included provision of staff and equipment and training of Zimbabweans within Zimbabwe, other Third World countries and in Canada itself. The assistance also greatly boosted the lecturer training capacity of Gweru Technical College. The current programme is the Zimbabwe-Canada General Training Facility (Z-CGTF) which is emphasising staff development through local and external scholarships on both long-term and short-term basis and the development of short courses on a needs basis. Canadian specialists may be brought in for short durations only.

The Canadian contribution in building a large reserve of local experts on a countrywide basis has been extremely significant, given the hundreds of Zimbabweans who have benefited from the assistance.

### *French Contribution*

France, through its agency, Mecaform, has made its mark in TVE through its generous assistance in terms of equipment and specialist staff to Westgate VTC. They have supported this institution from a one-department centre to a comprehensive centre catering for not only Automotive engineering, but also Mechnical and Electrical/Electronics engineering. Millions of Zimbabwe dollars have been invested in this regard and thousands of skilled workers have been trained at the centre which is also training even apprentices. They have now expanded their assistance to include Chinhoyi Technical Teachers College.

### *Other Donor Contributions*

Other donors to TVE have included Switzerland, through the European Economic Community, which trained ten lecturers for the Hotel School at Bulawayo Polytechnic. The Irish Republic steadfastly supported Kwekwe Technical College and the Hotel School with staff and small equipment.

The former Federal Republic of Yugoslavia assisted with the equipmentation of Mutare Technical College. While Holland and Denmark have supported TVE with specialist staff for youth and other training centres, the British Council has assisted with staff development.

The combined impact of donor contributions to TVE has been quite significant and placed Zimbabwe in a position where it has a very high potential to benefit both the local and neighbouring economies. The exploitation of this potential is paradoxically constrained by staff shortages, despite all the efforts to develop the necessary staff, as discussed above and this is the discussion in the next section.

## SUPPLYING PERSONNEL FOR THE TVE SYSTEM

The TVE system, like all other learning environments, operates effectively when manned by trained and experienced staff who are committed to making a professional career in the system. The staff have to be qualified academically and professionally/technically, as well as trained as trainers. As further pre-condition, the staff have to have adequate post-qualification or concurrent relevant practical experience in their disciplines within a formal working environment. They should then stay on in the system to gain and consolidate experience as professional trainers or TVE administrators and managers who then also have established the necessary linkages with the working world. Given this ideal and desirable disposition of TVE personnel, let us examine the circumstances of the TVE system since its establishment in Zimbabwe.

### *Staffing TVE before Independence*

At independence in 1980, the exodus of white skilled workers seriously destabilised the national human resources reserves. The remaining limited pool of qualified and experienced people re-adjusted in terms of moving from their current positions to better ones. Lecturers moved from the TVE system into administrative or productive posts in both the public and private sectors. Other skilled people moved from the public sector into the private sector or from the public service into parastatals.

To underscore the national role of TVE, the Government created the Ministry of Manpower Planning and Development which promptly conducted the National Manpower Survey (NMS (1981) to assess the position and determine the way forward for the TVE. Concurrently, the case for human resources development (HRD) was also submitted to the ZIMCORD conference (1981) (Zimbabwe International Conference for Reconstruction and Development) which subsequently marshalled several aid packages, including HRD.

These aid packages facilitated the recruitment of staff from donor countries and the expansion of TVE institutions and programmes. Since the recruitment of expatriates was intended to be only a stopgap measure, steps were also taken to recruit as well as train Zimbabweans who would take over from the expatriates.

In the ensuing efforts to recruit locals, the pre-indepence approach was adopted, since the replacement staff had to be of the same calibre as those who had left and the same level of courses was to be offered. Staff with the necessary academic qualifications and specialist training were recruited, although they did not necessarily have either the essential post-qualification or concurrent practical working experience in their specialisations or the requisite training as trainers. Staff development programmes were organised both locally and externally for purposes of not only upgrading the academic and technical qualifications of the existing staff and prospective ones, but also preparing them to qualify as professional trainers and administrators.

To increase the training opportunities while minimising the costs, the City and Guilds of London FETC was localised under the Further Education Examinations Board (FEEB) which authorized some other colleges to offer this course to the existing lecturers. A programme for Cadet lecturers was introduced at Harare and Bulawayo Polytechnics, and later replaced by the establishment of the Gweru Technical College which is now responsible for the training of technical lecturers.

Further, to support the TVE in secondary schools, the Government also established Belvedere and Chinhoyi Technical Teachers Colleges. The donors, such as USAID, CIDA, GTZ, British Council, SIDA, and EEC, played a fairly cruicial role in the staff development effort.

While all these efforts have, by and large, yielded the desired results, their calculated impact on the TVE system has been tempered by the local conditions. The overall staff vacancy rate in the technical and vocational institutions controlled or supported by the Ministry of Higher Education dropped from 28.68% (148) in 1990 to 2.3% (17) in 1993, while the total number of authorised posts rose from 516 (1990) to 737 (1993) of which 720 were filled. College capacity utilization rose from 80% (12,877 out of 15,919) in 1990 to 85% (23,044 out of 26,991) in 1993.

The above figures need to be viewed in perspective in order to appreciate the real problems with staffing in the TVE institutions. Firstly, the figures reflect general ratios of 1 lecturer to 30 students in 1990 and 1:32 in 1993, which are way above the recommended ratio of 1:12-16 for such institutions. There has, therefore, been a rather heavy reliance on the unpredictable services of part-time lecturers. Further, in 1993, there were actually 69 vacancies in Aircraft, Printing and Graphic Arts, Mechanical Engineering, Electrical Engineering and Civil Engineering. These vancancies had to be re-assigned to other short-staffed areas, such as Hotel and Catering, Science Technology, Instructor Training, Business/ Commercial/ Secretarial studies and Automotive Engineering. This re-assignment of posts explains the declared vancancies of 17 in 1993. This problem with securing the services of adequate engineering lecturers, by and large, explains the average annual deferment of 2,000 first and second year apprentices to the following year. For example, 1,616 apprentices attended college courses in 1992, while 1957 (55%) were deferred to 1993. In 1993, 1,506 attended college, while 1,836 (55%) were deferred to 1994. On the other hand, the Vocational Training Centres were able to train only 3,235 (63%) out of 5,162 skilled workers requiring upgrade training in 1990 and 1991, as at December 1993.

Further, the graduation of Gweru Technical College students dictated that the colleges should employ technical lecturers without the requisite post-qualification practical working experience in the productive world. Because of the pressure to replace a certain level of skilled workers, Gweru Technical college lecturers were all prepared for lecturing at the National Certificate level which is now over subscribed in certain disciplines only. Higher level courses and other disciplines have remained seriously starved of staff. The position in other training centres, such as YTCs, Welfare organisations and schools, has not been as encouraging either.

Further, the staff figures also do not reflect the rate of staff mobility and that most of the staff have hardly been in the system for five years or more. Staff join the TVE to gain working experience or even staff development then move on into the productive world as either training officers/managers or workshop forepersons. Conditions of service within the Public Service have generally militated against the attraction and retention of experienced and qualified lecturers. The Public Service Review Commision and the subsequent job Evaluation Exercise (1994) established that salaries in the private sector were generally double those in the public service, without even including other job packages.

These exercises also established that staffing problems in the Public Service were also exacerbated by bureaucratic procedures which are rather rigid and protracted. The result is that the public service has lost candidates and existing staff to the private sector and parastatals or even neighbouring countries whose procedures are more streamlined and less bureacratic, besides having better conditions of service. This explains the high mobility in TVE, on a countrywide basis, in both public and private sectors. This also explains the rather heavy reliance of TVE on part-time lecturers.

### *TVE Curriculum Development at Independence*

#### *a) Curriculum Objectives and Content*

At independence, curriculum development had to be effected within the new general policiy of establishing a non-racial egalitarian society. The curriculum is expected to equip the individual to be an asset to himself and society in both the formal and informal employment sectors. Given the need to raise the general standard of living of the society in general, the curriculum is also expected to equip the graduates with employment creation skills in both urban and rural areas. For purposes of enhanced economic development and securing a competitive edge on the international market, the curriculum is expected to gear the individual for industrial expansion and technological advances.

To facilitate the realization of those objectives, the curriculum is expected to prepare the individual to fit into society at the appropriate highest skill level which he/she is capable of attaining, subject to the availability of resources and opportunities. Hence, the TVE curriculum is expected to address both the various sectors of the economy and the commensurate human resources needs at various levels in those sectors. To this end, TVE curriculum is expected to cater for candidates with varying academic levels from primary education to the sixth form level, be they students or school leavers, employed or unemployed, males or females, etc. It should equip the graduate for both vertical and horizontal mobility within both the TVE system and the employment world.

In concrete terms, the curriculum is expected to produce skilled workers, artisans, and technicians for the various sectors of the economy, and further prescribes the necessary cognitive, psychomotor, affective and perceptual skills for each category and level of specialisation.

### *b) Participants in Curriculum Development*

The participants in TVE curriculum development include the relevant ministries, heads of public and private institutions with their specialist staff, specialists from industry, employers organisations and trade unions, national employment councils, NAMACO with its industrial training advisory committees, and professional bodies. The Ministry of Higher Eduation services the generality of TVE curriculum requirements, while specialist Ministries service their specialist requirements. The Ministry of Education and Culture is working closely with the Ministry of higher Education for purposes of introducing practical subjects in schools.

### *c) Types of Courses*

There are nationally recognised courses and purely college-based short courses. National courses are generally offered on full-time, block-release or part-time evening basis. The duration of courses vary from one year to three years.

Some courses are full-time college programmes, while others are designed in such a way that they are supplementary to a major programme, like apprenticeship training and cadetships.

Industrial attachments are steadily becoming a feature for most full-time college-based courses.

There is also a mixture of trade/occupation-based and broad-based courses. The latter courses generally equip the individual for further training or job adjustments, while the former tend to be terminal.

A diversity of short courses have been introduced under the umbrella of the Adult and Continuing Education programmes in most training institutions.

Pilot testing of curriulum is still not yet appropriately established. This aspect, as much as the operation of colleges, has been seriously affected by staffing and other resources constraints, as discussed in section 11 above.

### *Teaching Methodology in the TVE System*

#### *a) Influence of the Curriculum and The Environment*

The teaching methodology within the TVE system has generally tended to be teacher-centred, as opposed to child-centred, for a variety of reasons which need to be appreciated before the methodology is discussed. Firstly, it is a heritage from the beginnings and development of TVE in the country. The system uses teachers in schools and lecturers/instructors in training institutions. These people are expected to know more about both the subject content/practice and the course demands/syllabus than their students. They are, therefore, expected to lead and impart their knowledge to their students. On the one hand, the syllabus prescribes the number of teaching hours which a student must have in order to be permitted to take the prescribed examinations. There is, in fact, a rather strong emphasis on passing examinations which tend to be viewed more as reflection of the effectiveness of the teacher than that of the competence of the student.

For the apprentices and cadets whose training is generally done on the job, their trainers emphasise the quality and quantity of production for which they are paid.

Within the institutions themselves, there are several constraints. Firstly, there is the shortage of teachers, generally because of unattractive conditions of service. Where teachers are available, they have to contend with other operational problems. The teacher-to-students ratios for practical subjects tend to be on the high side, especially in schools ranging from 1:20 to 1:30, instead of 1:12 to 1;16. Because of financial constraints, there are shortages of equipment/tools, materials/stationery, literature/books and audio-visuals in workshops, laboratories and classrooms/lecturerooms. There is also a general shortage of tutorial facilities which are really a reflection of the general infrastructural constraints.

Finally, the students' personal and home backgrounds are generally neither supportive of nor conducive to further private studies/practice when away from the institutions.

#### *b) Teaching Methods*

The teaching methods have, therefore, been designed and developed in the light of the environment and syllabus challenges discussed above.

The chalk-and-board and lecture/notes approaches are fairly prevalent. Because of literature shortages, the use of teacher-compiled hand-outs is also in extensive use. This is the case in virtually all learning situations within the institutions. While classrooms which accommodate larger numbers of students are used for straight lectures/lessons, laboratories and workshops are used for practical demonstrations by the teachers/lecturers. To service a larger number of students in the laboratories and workshops, a system of students rotation is generally utilized for full-time students, while in other cases, the systems of block-release, day-release and evening classes are in use.

The use of mechanical audio-visual aids devised by the lecturers or extracted from the limited literature is generally practised. The use of simulations and other audio-visuals based on the electronic media is in its infancy, because of financial constraints. There is as yet no meaningful central learning resources centre for TVE.

To bring students closer to industry, a dual approach is adopted. Industrial visits are organised for students to observe the application of theory. This is subject to the availability of funds for such visits. Alternatively, industrial attachments are organised either during the holidays or, at some point, during the term, when lessons/lectures have to be suspended. This is also subject to the timely availability of both attachment opportunities and the necessary travelling and subsistence funds for the students to travel to and from the company providing such facilities. In other cases, real production work is being secured for students to work on it. The problem is, of course, to persuade individuals and companies to risk both time and wastage of materials in a learning environment. As a supplement to these arrangements, specialist practitioners are invited for part-time lecturing at the institutions whose time-tables have to be accordingly adjusted to accommodate the convenience of such specialists.

To get the students involved and internalise the know-how, the teahers give them assignments which require them to use the library, workshops and laboratory. The teachers are also available for consultation with students during normal working hours, if the lecturers are not having lessons. In addition, they give the students some tests in the course of the term. In some cases, these assignments and tests contribute towards the final coursework assessment for the full course, while in others, the students have to do a project in the course of the study period. The main problem is that only limited exercises and tests may be given, because of resource constraints.

Within the vocational training centres the competency-based modular training is being introduced for skilled workers upgrade training. They also use stimulations and oral production work, though on a limited scale. This approach is working fairly well in the vocational training centres because the curriculum is generally not examinations oriented and actually developed at the centres themselves, although involving other parties, such as employers and workers organisations. The other factor is that the centres generally cater for adults with considerable experience in industry.

### *The Examinations System*

The TVE examinations system has generally fallen into two broad categories : theory examinations and practical examinations. In both cases, the examinations have tended to be terminal, while in the case of theory ones, they have tended to serve as a basis for promotion to the next higher level of training. It should also be pointed out that the examinations have also tended to influence formal employment and promotion prospects on the labour market.

### *The Examinations System Since 1980*

Besides the abolition of the racial system, the system for European examinations was generally retained, with some modifications. However, in 1990 a rationalised vocational education system was introduced. This was as a result of confusion in the employment sector and the training system itself as to the equivalence of the TVE qualifications.

The Cabinet agreed that there was to be established a five-tier system of vocational education in the country and that all those involved in TVE should steadily work to that system. The five levels were endorsed as follows : Pre-Vocational Certificate (PVC) to be taken concurrently with the Junior Certificate from Form I to Form II, within the school system ; National Foundation Certificate (NFC) for Form III to IV and to be taken within the school system ; National Certificate (NC) for post - 0 level school leavers or NFC holders ; National Diploma (ND) for post - 'A' level or NC holders ; and Higher National Diploma (HND) for ND holders only. While PVC and NFC take 2 years to complete, NC takes one year, ND, 2 years for NC holders or 3 years for school leavers and HND - one year. The qualifications are both terminal and promotional.

To administer the new system, the Higher Education Examinations Council (HEXCO) was established to replace FEEB ? The certificates are, however, issued by the Ministry of Higher Education which has retained the principles of Group - and single - certificates and re-writes.

### *Practical Examinations*

These have generally applied to the apprenticeship training and upgrade training programmes.

#### *a ) Statutory Trade Tests*

In terms of the laws governing apprenticeship since 1968, apprentices have been required to pass a *Statutory Trade Test* set by the Department of the Registrar of Apprenticeship, if they do not pass their end-of second term college tests. The statutory tests are practical and trade-specific. These are compulsory, therefore no fees are charged.

#### *b ) Competency Tests*

Under the repealed Apprenticeship Training and Skilled Manpower Development Act (1968), apprentices whose performance was outstanding after four and a half years of training were permitted to apply to the Registrar for a *Competency Test.* This was a practical test set by the Registrar's Department. An apprentice who successfully completed this week-long practical test was given a remission of 6 months and, therefore, completed his apprenticeship before the expiry of five years of his contract. They were voluntary and fees were charged.

*c) 'C' Inspections*

Towards the end of the apprenticeship contract, the Registrar's Department conducts a *'C' Inspection* which is really a comprehensive practical test which determines whether an apprentice should complete his contract on due date or the contract should either be extended or even cancelled. These are also compulsory, therefore, no fees are charged.

*d) Trade Tests*

Following the advent of independence and the exodus of white skilled workers, industry and Government agreed to assess the level of skills of workers who had acquired considerable experience and even training and tuition outside the apprenticeship programme, as revealed by the NMS (1981). For this purpose, the Ministry introduced *Trade Tests* which were equivalent to the Competency Test and 'C' Inspection for apprentices. Those who successfully completed these tests were issued with Journeymen or Skilled Worker class I Certificates by the Registrar of Apprenticeship and Skilled Manpower. Since it was observed that the candidates had varying levels of competency in their trades/occupations, it was further agreed to issue varying levels of Journeymen or Skilled Worker Certificates at Class IV (the lowest), III, II and I (the highest). These classes correspond to the apprenticeship programme from first year (Class IV) up to fourth year (Class I). These are voluntary for the candidates, therefore, fees are charged.

*e) Progression Trade Tests*

Those skilled workers who attain less than Class I in a trade test may attend upgrading courses at the vocational training centres which administer these tests to assess the trainee's level of know-how. These enable the trainees to progress from module to module and to prepare for another attempt at the trade test for higher classification, if successful. It needs to be also pointed out that, besides facilitating appropriate enrolment for upgrade training in vocational training centres, Skilled Worker Classes are integrated in the industrial agreements of the National Employment Councils consisting of Employers and Workers representatives. The agreements prescribe the appropriate wage rates for the classes.

## MAJOR CHALLENGES FOR THE NEXT TWO DECADES IN TVE

In terms of the general thrust of the Government, TVE is expected to facilitate the implementation of the economic structural adjustment programme (ESAP) and all its associated policy commitments. The commitments include liberalisation which entails decentralisation and the establishment of a free market economy ; raising the standard of living of the population ; health for all by the year 2000 ; housing for all by the year 2000 ; provision of clean water for all in rural and urban areas ; increased production ; improved quality of products ; increased energy supplies to the entire community ; increased experts ; establishment of a more effective public service ; increased employment opportunities for both unemployed adults and school-leavers ; and increased communication and transport infrastructure.

The challenges to the TVE system are both endogenous and exogenous to the system. Within each category, there are a myriad of problems some of which have been the subject of research.

### *Endogenous Challenges to TVE*

These are challenges found within the TVE system itself.

*a) Capacity Constraints*

The general local TVE capacity is too limited for the requirements based on both social demand (supply side) and economic needs (demand side). For 1,515 secondary schools, there are only 29 public training institutions offering nationally recognised courses in general TVE, agriculture and teacher education, and a few others for the health professions. Only 62 of the secondary schools were offering NFC courses as of March 1995.

With an average transition rate of 66% from primary to secondary education and 7% from form IV to Form V, the TVE system is ill-equipped to adequately absorb an annual average of 300,000 school-leavers, given annual average enrolments of 40,000 in TVE institutions. Some way has to be found to augment the TVE infrastructure.

*b) Programme Constraints*

Currently, most formal courses, based on the rationalised TVE structure, are offered at National Certificate level, with a few at NFC, ND and HND level, while none have been developed for the PVC level. Even for those courses already in place, the entry requirements are so rigid that the courses are restricted to the few who qualify and subsequently secure places in the limited institutions. Other industrial sectors, like leather and footwear, textile and clothing, food and drink, still need to have courses developed for the majority of their specialisations and at appropriate levels. In some cases, the courses are either too long or too short to attract the necessary candidates. A diversity of programmes will, therefore, have to be developed, including distance education for TVE. Deliberate and urgent steps need to be taken to provide formal TVE programmes for post-primary, post JC and various levels of school drop-outs, on a countrywide basis.

### c) *Staffing Constraints*

Because of staffing constraints, some technical and engineering courses have had to be suspended, while other courses cannot be developed. Where sudden staff losses occur, the students to teacher ratios tend to be also inflated, thus affecting the teaching-learning process. Innovative ways have to be found in order to increase and stabilise staffing in the TVE, especially conditions of service.

### d) *Accommodation Constraints*

The infrastructure can currently accommodate only a limited number of staff and students, and therefore, tends to service local communities who can commute daily to the institutions. Methods of increasing accommodation for both staff and students need to be devised.

### e) *Bureaucratic Delays*

The system is generally rather centralized and is therefore rather riddled with protracted procedures. Decision-making and follow-up action take too long, a process which tends to be rather counter-productive to the system. Ways and means have to be found in order to establish systems and procedures which can enhance the effective operation of the system.

### f) *Information Deficiency*

There is currently a serious deficiency in the central management information system. Information is vital for decision-making and appraisal of performance. This area needs to be urgently addressed.

### g) *Funding Constraints*

Because of funding constraints, TVE is having to operate under a number of adverse conditions. The system nominally controls resources allocated to it, since effective control of funds is made centrally. Conditions of service, especially salary packages and other financial incentives, cannot be improved by the system itself. Instructional equipment, especially in workshops, is rather outdated, being generally several decades behind technoloogy in industry, because there are no adequate financial resources to replace the equipment. The necessary teaching aids and study literature are not readily available as they have to be imported, in situation where foreign exchange available to TVE is at a premium. Innovative ways have, therefore, to be found in order to establish viable funding and financial management systems for TVE.

*h) Low Female Enrolments*

Female enrolments in TVE programmes are generally very low, especially in the sciences and technical fields. Steps have to be taken to increase female participation in TVE. This should include studies to examine the factors militating against the significant participation of females in TVE.

### *Exogenous Challenges to TVE*

Since the system has to operate rather closely with the outside world, it is naturally affected by decisions and adverse developments in its environment.

*a) Challenges of ESAP to TVE*

As the State endeavours to curtail public expenditure, that general effort is also affecting the TVE, as much as all other public institutions and organisations. This is beyond the control of the TVE system which, however, is suppoed to sustain the programme. Hence, appropriate decisions have to be made at national level to facilitate the functioning of TVE programmes.

*b) General Accommodation Shortages*

On a countrywide basis, there is a general shortage of accommodation, while the available limited accommodation under the private sector is too expensive for staff and students. Some of the staff shortages and under-utilization of available TVE capacity is partly accommodation - induced. Again, this is beyond the control of the TVE system, and calls for central decision-making to boost TVE.

*c) Limited Industrial Attachment Opportunities for Students*

As both public and private employers generally focus on survival in the context of ESAP and trade liberalization, training opportunities for students are being minimized. The problem is being exacerbated by the increased numbers of institutions, students and programmes requiring industrial attachments while the employment sector is contracting as a way of organisation consolidation; The system has, therefore, to find ways and means of tackling this problem.

*d) Reluctant Participation of Employers in formal TVE Programmes*

Employers are generally reluctant to sponsor general training which tends to, in fact, equip the individual to be more mobile on the basis of the viability of his/her expertise.

There appears to be more emphasis on investment in either capital - intensive technology or specialized staff development for the peculiar needs of the organisation. This is actually a worldwide problem. Ways and means have, therefore, to be found to secure the co-operation of employers in TVE.

### e) *General Attraction of Academic Advancement*

There appears to still prevail a strong feeling in the community, especially among parents and some bright students, that higher academic qualifications are better than TVE qualifications. In the circumstances, TVE is either shunned or used as a transit point, while the student is securing a place for higher academic studies. Since TVE, as much as academic education, also demands intellectual excellence to cope with technological advances, a way has to be found to singnificantly upgrade the status of TVE in society.

### f) *Societal Prejudices Against Female Participation in the Economy*

Parents and employers generally appear to have some stereotypes on courses and subjects which may be ideal for females. These stereotypes tend to affect the types of subjects taken by girls at schools and the areas in which the employers are prepared to either engage or train apprentices. These pre-conditions for females tend to affect the numbers of females who may be enrolled in TVE programmes. Hence, ways and means have to be found to eliminate the societal constraints affecting female entrance into certain TVE programmes.

## WAYS TO ACHIEVE THE DESIRED FUTURE SITUATION

The national economic structural adjustment programme is set to continue for the next five to ten years or even further, in order to realize the objectives for which it was originally adopted. Some of its key objectives include the general raising of the living standards of the population through empowering the people to engineer and sustain economic development and enabling the economy to have a competitive edge on the international market.

The process of empowering the people entails giving the individuals appropriate expertise in various areas of endeavour and at appropriate levels. This expertise is a fundamental basis for the individual to find his/her way into the economy and society as an asset. The process which facilitates the empowerment of the individual is TVE. The critical role of TVE in national development has been recognised, but over the years, the need to establish a viable TVE system appears to have been addressed in a dilatory manner, for one reason or another. Firstly, TVE was used to achieve racial objectives in the social ad economic setting of the colonial era. With the advent of independence, academic considerations were substituted for racial considerations, as TVE was generally restricted to formal qualifications, in terms of both entry requirements and final qualifications.

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The desired future situation for TVE is that an all embracing decentralized system should be put in place to focus on the diverse human resources requirements of the economy in the formal and informal sectors, rural and urban areas, and in primary, secondary and tertiary sectors. The system should variously absorb persons of varying backgrounds, including students and school-leavers with varying education levels, employed and unemployed adults and youths, males and females, disadvantaged communities, self-employed people, etc. It should also produce people with varying levels of expertise from the lowest level up to middle level manpower, while higher education produces high level manpower.

To achieve that desired future situation, there is need to learn from the experiences of the country and that of others. In this regard, use needs to be made of these experiences, as well as the findings and recommendations of the studies made in this area, on the possible way forward.

### *Improving the Internal Efficiency of the TVE*

As observed in section 15 above, the TVE has endogenous constraints which need to be addressed in order to improve its effectiveness and efficiency. Several approaches which individually and mutually impact on the system will need to be considered and adopted.

#### *a) Improving the TVE Capacity*

To improve the TVE capacity, a two-pronged approach is called for.

i) Fully utilizing the existing formal TVE Infrastructure

Steps need to be taken to optimise the utilization of existing institutions and programmes. This can be done by addressing those factors which have been observed to be currently constraining the full utilization of such existing facilities, like staff shortages, etc.

ii) Expansion of National TVE Infrastructure

To expand the national TVE infrastructure, a two-pronged approach is also called for.

Firstly, the State needs to fully recognise the essential role of other public and private institutions, employers and programmes engaged in TVE outside the formal system.

Included in this group are private employers and institutions, professional bodies, other government departments, parastatals, local authorities and non-governmental organisations. These organisations are investing considerable resources in TVE, collecting considerable public funds in the form of fees or donor funds, and serving thousands of people. The extent to which they are fulfilling an essential role is demonstrated by the extensive patronage of their programmes by both members of the public and employers themselves (public and private). It may be pointed out that some of these marginalized organisations conduct fairly expensive but quality programmes and others are serving the majority of people who are either currently disqualified from or cannot be accommodated in the formal TVE system. The formal recognition by the state of the essential role of these other organisations will encourage them to increase both their programmes and utilization of their capacities, especially if some form of State subsidies are also built in. This can be instituted by initiating dialogue to work out the *modus operandi*, including the establishment of some form of a co-ordinated but decentralized system. In this way, a situation where there are 16 youth training centres but only 12 are operating can be systematically addressed. It will also be possible to give an annual account of the TVE acivities at the national level.

Secondly, State recognition of the TVE role of these other organisations will also encourage the existing ones and even new ones to further invest in infrastructural expansion, in the knowledge that expenses will be shared with the state. There is the potential, especially among local authorities, communities and welfare organisations, for the establishment of more training centres., if some state support is fairly assured.

### *b) Eliminating Bureaucratic Delays*

Steps need to be taken to address the problems associated with established systems and procedures in the system. The diversity of specialisations and the need for varied programmes, coupled with the competitive environment within which the TVE operates, dictate that decisions and follow-up actions be expeditiously made and effected. Institutions and programmes have to be managed along business lines where timing and risk-taking are integral to the training business, as it were. There is, therefore, a need to review the law, regulations and instructions where they are, in fact, serving as controls instead of facilitators for TVE operations. Specific attention could be given to financial and service instructions and tender procedures, so that decisions can be made as near as possible to the point where action is taken and accountability demanded.

In this regard, the worldwide trend appears to indicate a move towards establishing a statutory body, representative of the social partners, to plan, organise an account to the State for the TVE operations. A number of studies have also commented on the need for a decentralized system.

### *c) Obviating Programme Constraints*

The diversity of specializations and requirements serviced by TVE dictate that the system comes up with equally diverse programmes. Such an environment does not easily lend itself to centrally determined or even mostly formal programmes, since such an approach easily lends itself into bureaucratic quagmires. Individual institutions and organisations should be given the latitude to establish training needs and devise appropriate training programmes. Some of the programmes could be short-duration while others may be long-duration. Alternatively some courses may be specialised, while others may be broad-based. The target populations and graduates may also be varied. The State can then determine those programmes and courses which could be accorded national status, guided by some standard criteria known to all the parties. As far as national courses are concerned, there may also be need to re-examine the curriculum so that institution-based programmes are self-contained. In this way, the prevalence of courses requiring industrial attachments which are not guranteed can also be overcome. At the same time, course durations could also end up being reduced, thus opening up available capacity for enrolment of more students.

Further, the concept of distance education for TVE will also need to be considered, especially to cater for people already in employment or located far away from training facilities.

### d) *Improving Staffing of TVE*

Since the major problem with TVE staffing has been loss of staff to the productive sectors, in particular, deliberate steps need to be taken to boost conditions of employment for both full-time and part-time staff. Staff development efforts need to be boosted and sustained with appropriate strategies. One such key strategy could be to re-define the role of institution-based training such that the corresponding curriculum demands lecturers who are not at the same time equally demanded in industry. The German approach in this regard appears to have paid dividends. Their vocational school teachers are generally strong on technological theory, while industry prefers practical-oriented master-craftsmen (Munetsi and Simango, 1994). In this way, national TVE courses can utilize graduates from Gweru Technical College and the Universities. The other critical strategy would be to permit the TVE system to directly set its own conditions of employment, as well as hire and fire its staff.

### e) *Overcoming Accommodation Constraints*

It has been observed that people offered employment by certain institutions have subsequently turned down such offers or abruptly resigned, mostly because of accommodation problems. On the other hand, the few colleges which have been provided with ZIMDEF houses have actually attracted staff from other colleges. This problem has also affected may students and school-leavers who have either failed to enrol or dropped out from courses because of shortage of residential accommodations.

Steps will need to be taken to adress accommodation needs at the institutions, if the adverse effects of accommodation shortages are to be overcome.

### *f) Improving Funding for TVE*

Funding for TVE institutions has tended to be based mostly on parliamentary allocations which have tended to remain static because of Government policy of a "no growth budget". On the other hand, ZIMDEF resources have been applied to merely supplement parliamentary allocations where these were inadequate. Private individuals and organisations have contributed to TVE funding by way of fees and donations.

To improve TVE funding, there is need for more innovative ways to be found. Firstly, an objective formula needs to be devised in order to facilitate the determination of realistic parliamentary allocations to the TVE. Distinct and substantive roles of voted funds and ZIMDEF, as well as fees, need to be properly drawn up in order to establish complementary roles. In this way, the limited funds can have optimum impact on those specific areas on which they are focused.

Further, ways and means have to be found to ensure the utilization of fees to directly benefit the organisation or programme generating such fees. This approach could have a double effect of both enhancing the financial resources of TVE and encouraging staff to be much more innovative in devising training exercises which can further generate more funds for their departments and colleges.

The funding can further be boosted by encouraging other organisations, like municipalities, and private organisations, to invest in training; This can be engineered, if the state could devise an appropriate mechansim, such as providing seed-funding and/or subsidising operating expenses of institutions or programmes. The State could also consider per capita grants or pays fees for the students attending approved training institutions or programmes. Currently, payment of fees and grants is restricted to students at institutions established or designated by the Ministry. The system of loans for students will only release funds to other private and public institutions, but also ensure that the funds will be repaid, with some interest, for further re-investment in the TVE.

Finally, the idea of commercialisation of some college services will also need to be carefully implemented.

### *g) Establishment of a Central Management of Information System (MIS)*

Progressive decision-making and follow-up action heavily rely on objectively and systematically compiled information on system operations and its environment. This holds true of all systems, especially in the scientific age. TVE in Zimbabwe is rather seriously deficient in this regard. Consequently, there is no appreciation of the extent to which both the public and private sectors are investing in this area and the extent to which both adults and youths are being accommodated in TVE. Even within the formal TVE under the Ministry of Higher Education itself, the absence of MIS is being strongly felt. It is necessary to have objective central information on the various aspects of TVE including institutions by ownership, category/type and location, programmes/courses by category/type and levels,

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funding magnitudes and sources, as well as staffing magnitude, categories and quality. It is also necessary to have an appreciation of the annual trends in the various essential aspects of TVE. It is only on the basis of such critical central information that reviews and comparisons of various aspects of TVE can be made and scenarios for the future made in order to facilitate progressive national decision-making, planning and development.

In the circumstances, steps will need to be taken to establish, consolidate and maintain a central MIS, starting with the formal TVE under the Ministry of Higher Education. This will also facilitate research work discussed later in this section.

### *h ) Increasing Participation of Marginalised Groups in TVE*

There is a rather minimal presence of females in most TVE programmes, especially the hard-core sciences and engineering technology, because of a variety of reasons, chief of which are sociological considerations influenced by traditional sex roles. Also equally marginalised are the disabled persons for whom suitable structural and instructional facilities are generally absent from both TVE institutions and programmes. Then there are people from the communal areas or poor sections of society who cannot afford to pay expenses for TVE programmes.

To accommodate such people in TVE, there is need for a variety of initiatives to be taken. The system should encourage schools to facilitate the taking of relevant subjects, such as sciences, mathematics and practical subjects, by students from marginalized groups. More of such subjects should be introduced in more schools, while more financial support is readily made available to students from such groups. The subjects can, in fact, be made part of the compulsory core-subjects in secondary schools.

Further, both the school and TVE systems should ensure that the institutional infrastructure and staff are appropriately geared to also accommodate increasing numbers of students from such groups.

For those who are already out of school, the TVE system should devise suitable courses and enrolment procedures which are sensitive to the needs of marginalized groups, while upholding merit considerations. There is, therefore, a need for a close study of the existing set-up to establish and remove any practices which appear to be prejudicing the full participation of marginalized groups in TVE. For instance, besides targeted funding support, female staff may need to be increased and to actively participate in various student recruitment committees ; more female residential facilities may need to be increased ; and specific steps taken to facilitate the enrolment and training of both females and disabled people.

*i) Utilizing and Supporting Research in TVE*

A number of pertinent studies have been made on both the internal and external efficiency of the TVE system in and outside Zimbabwe. Some studies have been variously published, while others have not been published. Many more studies are either under way or being planned by both government and private individuals/organisations.

There is need to establish a culture of utilizing and encouraging research in TVE, in order to learn from both local and external experiences and avoid re-inventing the wheel. As part of the process, information on research conducted to-date needs to be compiled and appropraite research reports acquired for a central library. The reports, especially recommendations, should be closely studied and followed up. The State will also need to establish mutual working arrangements with researchers and research organisations.

### *Dealing With Exogenous Factors*

As observed earlier, exogenous factors also seriously affect TVE, as much as other sectors of the economy, but tend to be generally beyond the control of the system.

Let us, therefore, examine the extent to which these factors can be dealt with to minimise their effect on TVE.

*a) Dealing with National Budgetary Constraints*

It needs to be appreciated at national level that TVE is by nature an expensive undertaking in every respect. Budgetary cut-backs at any point in the budgeting or expenditure cycle means a reduction in the numbers of trainees or deficient training of manpower. It is quite different from production or service activities which can be either delayed or even halted mid-stream. Reduction or withdrawal of funds in TVE directly affects students whose fairly guaranteed reaction readily attracts the attention and concern of the general public. Such a budgetary move means students with scheduled studies will be affected, while those seeking career opportunities and their sponsors, including employers and the state itself, will be frustrated. In these circumstances, there is need for the Exchequer to be persuaded to desist from reducing TVE allocations, once made on the basis of an agreed formula, as discussed above.

*b) Addressing the General Accommodation Problem*

Housing is at a premium on a countrywide basis. In view of the critical role of quality power in all sectors of the economy, there appears to be a strong case for students and personnel of the TVE to be initially provided with accommodation under the direct control of the institution at which the individual is employed. Alternatively, heads of institutions should also solicit the support of local authority heads in securing municipal houses, as a priority for TVE programmes in their respective localities. A quota system by each local authority would fairly and adequately provide guaranteed houses for local TVE staff

The State, through the appropriate Ministry, and ZIMDEF can also put up rented accommodation tied to the TVE system.

### c) *Improving employers' participation in TVE*

Except for a few employers, the majority appear to view TVE as the sole responsibility of the State, given their tax and levy contributions to the Exchequer and ZIMDEF respectively. Hence, when requested to create industrial attachment opportunities for students, the employers normally want to know how much they will be paid by ZIMDEF, in particular; There is, therefore, a need for employers to be directly involved in the decision-making and implementation process of the TVE, so that they can appreciate their essential role which transcends immediate monetary benefits. In fact, their substantive involvement in the TVE will engineer a sense of belonging and ownership of the system. They will appreciate that the system prepared school leavers for smooth transition to the employment sector and their employees for increased and improved production, while also making them quality consumers of their products and services. They will also appreciate the extent to which both the Exchequer and ZIMDEF resources are, in fact, not inexhaustible.

In the circumstances, the establishment of a central training body, representatives of the social partners, to be held accountable for the planning, organisation and development of TVE, including the management of ZIMDEF, will go a long way in improving the participation of employers. The other advantage is that the body, through the employer representatives, will actually be in a better position to continuously persuade and mobilise the employers for TVE.

### d) *Upgrading the Status of TVE*

Society has tended to give lower status to TVE than academic education. This attitude has actually been re-inforced by the State in its treatment of the two systems. TVE has been viewed as the avenue for the non-academically gifted students who have to be prepared for menial employment in the world of work. More public funds have also tended to be allocated to academic education than TVE. Even within the school system itself, funding for the vocationalisation of education adopted in 1987 has remained minimal. Meanwhile, there is a current general thrust to emphasize expansion of university level education which generally appears to be focusing on purely intellectual development. Resources are accordingly being made available, while those for TVE are either held constant or dwindling in real terms.

In the circusmtances, concrete steps need to be taken to re-orient the psychological orientation of society so that it can fully appreciate the value and importance of TVE on whose products all economies generally depend. Besides positive publicity, public resources allocations need to demonstrate that sensitivity. The provision of loans for TVE introduced in January 1994 serves as a good starting point and needs to be extended to those other institutions, especially private, which are currently excluded; The principle is already being considered for non-public universities and is in practice at non-governmental teachers colleges.

### *e) Overcoming Societal Prejudices Affecting Female Participation in TVE*

The low female enrolments in TVE have generally been attributed to societal attitudes of both males and females themselves towards gender roles. In the circumstances, the numbers of female tend to be reduced even before they approach the TVE system, especially for courses and programmes which have tended to be male-dominated. The general physical set-up in industry and TVE institutions appears to favour a male-dominated society which is closed to females. Both employers and parents generally tend to subscribe to the concept of gender roles and thus prejudice the integration of females, through various mechanisms outside the TVE system.

In the circumstances, steps will need to be taken to both counter the prejudices and prepare the ground for unimpeded female entry into the various TVE programmes, especially those which are male-dominated. As discussed in section 15.1 above, parents need to be encouraged to guide their daughters to take up pertinent subjects which prepare them for TVE and employers should be educated on the need to emphasise merit as opposed to gender considerations when recruiting for employment and training. Even within the school system, teachers will also have to be counselled on the need to encourage girls to take up and excel in subjects required for TVE, and to accordingly enlighten parents on the subject.

As part of the strategy, research will have to be conducted to establish precedents of female participation in male areas within and outside Zimbabwe and to widely publicise the findings of such studies, through the local media and in schools. A durable strategy would be to establish an institutionalised careers guidance and counselling organisational infrastructure.

## CONCLUSION

In the course of the history of Zimbabwe, TVE has fulfilled a number of roles, depending on the national philosophy of the day. It was used by settlers to establish and maintain the supremacy of the white settlers over the indigenous people in all spheres of the national socio-economic activities. TVE generally prepared the dependants of settlers for active and worthwhile economic participation in the modern sector, while it also prepared Africans for community development in traditional or African societies.

With the advent of the Federation of Rhodesia and Nyasaland and the era of industrialization, TVE was used as the vehicle to facilitate the industrialization process and the establishment of the relationship of the horse and its rider between Africans and Europenas.

In general, TVE was used as preparation process for the transition of students from the school to the world of work and further training.

At independence, TVE was viewed as a vehicle of empowering the locals to take control of the economy, besides facilitating the replacement of white emigrants who had had the monopoly of medium and high level expertise.

With the emergence of the phenomenon of the school-leaver unemployment and the contraction in formal employment opportunities, TVE is viewed as a vehicle of equipping, especially school-leavers, to create self-employment or compete favourably for formal employment.

For the society in general, TVE is expected to assist in not only raising the standard of living of society but also, in the process, break any social and economic class structures in society.

A number of initiatives have accordingly been taken to improve the TVE structures, supervision, staffing, finance, content and asessment system. Considerable research work has also been variously undertaken, with a view to better understanding the challenges of the system and determining more efective ways of improving TVE operations.

This duty also highlights what appear to be major challenges for TVE in the next two decades and suggests possible ways for the desired future to be achieved. In doing so, the study actually points to a need for further specific studies which should be followed with decisive action on the part of all those affected. Zimbabwe should be able to benefit from TVE in the same way other countries, like Germany, Singapore, USA, Malaysia, UK, etc., have since realised. The initial step appears to be the need to generate a general awareness and interest in TVE among all social partners so that they can be actively involved.

Appendix I

## ECONOMIC SECTOR PERCENTAGES BASED ON EMPLOYMENT AND EARNINGS POTENTIAL AS INDICATORS OF TVE PROGRAMMES*

| Sector | Employment Potential as percentage of economy 1993 | Earnings Potential percentage of economy 1993 |
|---|---|---|
| Primary | 30.00 | 12.00 |
| Secondary | 23.00 | 29.00 |
| Tertiary | 47.00 | 59.00 |
| **TOTAL** | **100.00** | **100.00** |

* *Extracted and calculated from CSO October QDS, 1994, Table 5.0 p.8*

Appendix II

## EMPLOYMENT CREATION PERFORMANCE OF THE ECONOMY BETWEEN 1985 AND 1993*

| Year | Total Employees ('000) | Annual Addition ('000) | Annual Addition (%) |
|---|---|---|---|
| 1985 | 1052.5 | - | - |
| 1986 | 1081.1 | 28.6 | 15.23 |
| 1987 | 1085.1 | 4.0 | 2.13 |
| 1988 | 1131.2 | 46.1 | 24.55 |
| 1989 | 1166.7 | 35.5 | 18.90 |
| 1990 | 1192.2 | 25.5 | 13.58 |
| 1991 | 1244.0 | 51.8 | 27.58 |
| 1992 | 1236.2 | -7.8 | -4.15 |
| 1993 | 1240.3 | 4.1 | 2.18 |
| | | ----------- | ---------- |
| **TOTAL ADDITIONAL EMPLOYEES** | | **187.8** | **100.00** |

* *Extracted and calculated from Table 5.0. of CSO October QDS 1994, p.8*

Appendix III

## EMPLOYMENT POTENTIAL AS AN INDICATOR FOR TVE PROGRAMMES BY INDUSTRIAL SECTORS

| Industry | Employment Percentage of Econumy (1993) | Employment expansion percentages between 1985 and 1993) |
|---|---|---|
| Agriculture/Forestry | - | - |
| Fishing | 26.00 | 17.00 |
| Mining/Quarrying | 4.00 | -12.00 |
| Manufacturing | 15.00 | 11.00 |
| Electricity/Water | 1.00 | 3.00 |
| Construction | 7.00 | 102.00 |
| Finance/Insurance | - | - |
| Real Estate | 2.00 | 32.00 |
| Distribution | - | - |
| Restaurants/Hotels | 8.00 | 23.00 |
| Transport/Communications | 4.00 | 0.00 |
| SERVICE | | |
| Public Administration | 7.00 | -2.00 |
| Education | 9.00 | 25.00 |
| Health | 2.00 | 29.00 |
| Private Domestic | 8.00 | 4.00 |
| Other | 7.00 | 53.00 |
| | ------------- | -------------- |
| **TOTAL** | **100.00** | **18.00** |

* *Calculated from Table 5.0. of CSO October QDS 1994, p. 8.*

Appendix IV

## INDUSTRIAL SECTOR PERCENTAGES BASED ON GDP AS INDICATORS OF TVE PROGRAMMES*

| Industry | Percentage of GDP for 1993 | Percentage increases between 1986 and 1993 |
|---|---|---|
| Agriculture/Forestry | 14.00 | 10.00 |
| Mining/Quarying | 7.00 | 8.00 |
| Manufacturing | 21.00 | 2.00 |
| Electricity/Water | 3.00 | 21.00 |
| Construction | 2.00 | 42.00 |
| Finance/Insurance | 6.00 | 42.00 |
| real Estate | 1.00 | 4.00 |
| Distribution/Hotels/ | 9.00 | 0.00 |
| Restaurants | 8.00 | 43.00 |
| Transport/Communications | 8.00 | -2.00 |
| Public Administration | 9.00 | 10.00 |
| Education | 3.00 | 21.00 |
| Health | 1.00 | 2.00 |
| Domestic Services | 8.00 | 40.00 |
| Other | | |
| **TOTAL** | **100.00** | **7.00** |

* *Calculated from Table 7.1 of CSO October QDS 1994, p.10*

Appendix V

## ECONOMIC SECTOR PERCENTAGES BASED ON GCF AS INDICATORS OF TVE PROGRAMMES*

| Sector | Percentage of GCF for 1993 |
|---|---|
| Primary | 14.00 |
| Secondary | 48.00 |
| Tertiary | 38.00 |
| | -------------- |
| TOTAL | 100.00 |

* *Calculated from Table 7.4 of CSO October QDS 1994, p. 13*

Appendix VI

## INDUSTRIAL SECTOR PERCENTAGES BASED ON GCF AS INDICATORS OF TVE PROGRAMMES*

| Industry | Percentage of GCF for 1990 | Percentage increases between 1981 and 1990 |
|---|---|---|
| Agriculture/Forestry | 11.00 | 10.00 |
| Mining/Quarrying | 4.00 | -74.00 |
| Manufacturing | 27.00 | 25.00 |
| Electricity/Water | 6.00 | 20.00 |
| Contruction | 15.00 | 421.00 |
| Finance/Insurance | 3.00 | -7.00 |
| Real Estate | 2.00 | -53.00 |
| Distrubution/Hotels | 5.00 | -2.00 |
| Restaurants | 10.00 | 52.00 |
| Transport/Communications | 2.00 | -14.00 |
| Public Administration | 3.00 | 80.00 |
| Eduation | 2.00 | 150.00 |
| Health | 3.00 | -29.00 |
| Other | 8.00 | 64.00 |
| G. P. Investment by Government | | |
| TOTAL | 100.00 | 16.00 |

* *Calculated from Table 7.4 of CSO October QDS 1994, p. 13*

Appendix VII

## EARNINGS POTENTIAL AS AN INDICATOR FOR TVE PROGRAMMES BY INDUSTRIAL SECTOR*

| Industry | Earnings percentage of economy (1993) | Earnings increases percentages between 1985 and 1993 |
|---|---|---|
| Agriculture/Forestry | - | - |
| Fishing | 7.00 | 175.00 |
| Mining Quarrying | 5.00 | 189.00 |
| Manufacturing | 23.00 | 240.00 |
| Electricity/Water | 1.00 | 170.00 |
| Construction | 5.00 | 296.00 |
| Finance/Isurance | - | - |
| Real Estate | 7.00 | 470.00 |
| Distribution//Restaurants | - | - |
| Hostels | 10.00 | 222.00 |
| Transport/Communications | 8.00 | 239.00 |
| **Services** | | |
| Public Administration | 7.00 | 115.00 |
| Education | 15.00 | 274.00 |
| Health | 3.00 | 261.00 |
| Private Domestic | 2.00 | 95.00 |
| Other | 8.00 | 317.00 |
| **TOTAL** | **100.00** | **233.00** |

* *Calculated from Table 5.9. of CSO October QDS 1994, p. 8*

Appendix VIII

## ECONOMIC SECTOR PERCENTAGES BASED ON G.D.P. AS INDICATORS OF TVE PROGRAMMES*

| Sector | Percentage of GDP for 1993 |
|---|---|
| Primary | 21.00 |
| Secondary | 26.00 |
| Tertiary | 53.00 |
| Total | 100.00 |

Appendix IX

## RANGES OF PRINCIPAL INTEREST RATES : MONEY MARKET: 1988 -1994*

| Type | Period 1988 | July 1994 | Percent Increase |
|---|---|---|---|
| 90 Day NCD Rate | 9.00 | 30.31 | 237.00 |
| Treasury Bills Rate | 8.41 | 31.87 | 279.00 |
| Discount House Call Money : | | | |
| Lower Limit | 7.65 | 22.50 | 194.00 |
| Upper Limit | 7.65 | 35.00 | 358.00 |
| Certificate of Deposit | 9.50 | 28.00 | 195.00 |
| 6 months - Low | 10.00 | 28.00 | 180.00 |
| High | 10.50 | 26.00 | 148.00 |
| 12 months - Low | 10.75 | 26.00 | 142.00 |
| High | 11.75 | N/A | - |
| 18 months - Low | 11.50 | N/A | - |
| High | 11.75 | 22.00 | 87.00 |
| 24 months - Low | 12.00 | 22.00 | 83.00 |
| High | | | |

* *Extracted and calculated from Table 20.0 of CSO October QDS 1994 p.48*

Appendix X

## INDUSTRIAL SECTOR PERCENTAGE REGISTRATIONS OF NEW COMPANIES AND PERCENTAGE INCREASES PERCENT IN REGISTRATION AS INDICATORS FOR TVE PROGRAMMES*

| Industry | Percentage Registration of Nominal Capital for New Companies | Increases Percent in registration of new Nominal capital 1986-1990 |
|---|---|---|
| Agriculture/Forestry | 5.00 | 74.00 |
| Mining/Quarrying | 1.00 | 126.00 |
| Manufacturing | 9.00 | 281.00 |
| Construction | 3.00 | 150.00 |
| Distribution/Restaurants | 15.00 | 19.00 |
| Other | 68.00 | 795.00 |
| **Total** | **100.00** | **275.00** |

* *Calculated from Table 24.0 of CSO October QDS 1994, p. 51*

Appendix XI

### INDUSTRIAL SECTOR PERCENTAGE REGISTRATION OF INCREASES IN NOMINAL CAPITAL OF EXISTING COMPANIES AND INCREASES PERCENT IN REGISTRATION OF NOMINAL CAPITAL INCREASES*

| Industry | Percentage Registration of Increases in Existing Capital 1990 | Percentage increases of Existing Capital 1986-1992 |
|---|---|---|
| Agriculture/Forestry | 8.00 | 1380.00 |
| Mining/Quarrying | 6.00 | -2.00 |
| Manufacturing | 19.00 | 526.00 |
| Construction | 1.00 | 3542.00 |
| Distribution/Restaurants | 41.00 | 1446.00 |
| Other | 24.00 | 122.00 |
| **Total** | **100.00** | **321.00** |

* *Calculated from Table 24.1 of CSO October QDS 1994, p. 51*

Appendix XII

### Growth of Primary Education since Independence

| Year | Nber of Schools | Growth (%) | Nber of Pupils | Growth (%) | Nber of Staff | Growth (%) |
|---|---|---|---|---|---|---|
| 1980 | 3,161 | --------- | 1,235,994 | --------- | 28,455 | -------- |
| 1981 | 3,698 | 16.99 | 1,715,169 | 38.77 | 37,773 | 32.75 |
| 1982 | 3,880 | 4.92 | 1,907,225 | 11.20 | 45,467 | 20.37 |
| 1983 | 3,960 | 2.06 | 2,044,487 | 7.20 | 52,502 | 15.47 |
| 1984 | 4,161 | 5.08 | 2,231,304 | 9.14 | 54,086 | 3.02 |
| 1985 | 4,234 | 1.75 | 2,216,878 | -0.65 | 56,619 | 4.68 |
| 1986 | 4,297 | 1.49 | 2,265,053 | 2.17 | 58,257 | 2.89 |
| 1987 | 4,439 | 3.30 | 2,251,319 | -0.61 | 57,120 | -1.95 |
| 1988 | 4,471 | 0.72 | 2,212,103 | -1.74 | 57,762 | 1.12 |
| 1989 | 4,504 | 0.74 | 2,219,171 | 0.32 | 58,370 | 1.05 |
| 1990 | 4,530 | 0.58 | 2,119,865 | -4.47 | 60,886 | 4.31 |
| 1991 | 4,559 | 0.64 | 2,294,934 | 8.26 | 58,436 | -4.02 |
| 1992 | 4,569 | 0.22 | 2,305,765 | 0.47 | 59,874 | 2.46 |
| 1993 | 4,578 | 0.20 | 2,436,671 | 5.68 | 60,959 | 1.81 |
| 1994 | 4,611 | 0.72 | 2,476,575 | 1.64 | 63,085 | 3.49 |

Appendix XIII

### Growth in Secondary Education since Independence

| Year | Nber of Schools | Growth (%) | Nber of Pupils | Growth (%) | Nber of Staff | Growth (%) |
|---|---|---|---|---|---|---|
| 1980 | 197 | -------- | 74,321 | --------- | 3,730 | -------- |
| 1981 | 694 | 252.28 | 148,690 | 100.06 | 4,874 | 30.67 |
| 1982 | 738 | 6.34 | 225,647 | 51.76 | 6,033 | 23.78 |
| 1983 | 790 | 7.05 | 316,438 | 40.24 | 8,808 | 46.00 |
| 1984 | 1,182 | 49.62 | 416,413 | 31.59 | 14,718 | 67.10 |
| 1985 | 1,215 | 2.79 | 482,000 | 15.75 | 17,315 | 17.65 |
| 1986 | 1,276 | 5.02 | 537,427 | 11.50 | 19,487 | 12.54 |
| 1987 | 1,395 | 9.33 | 604,652 | 12.51 | 21,981 | 12.80 |
| 1988 | 1,484 | 6.38 | 641,005 | 6.01 | 23,598 | 7.36 |
| 1989 | 1,502 | 1.21 | 695,882 | 8.56 | 24,547 | 4.02 |
| 1990 | 1,516 | 0.67 | 672,658 | -3.34 | 25,487 | 3.83 |
| 1991 | 1,515 | 0.20 | 710,619 | 5.64 | 25,204 | -1.11 |
| 1992 | 1,517 | 0.13 | 657,34' | -7.50 | 25,792 | 2.33 |
| 1993 | 1,518 | 0.07 | 635,202 | -3.37 | 24,058 | -6.72 |
| 1994 | 1,521 | 0.20 | 679,416 | 6.96 | 25,597 | 6.40 |

Appendix XIV

### Pupil/Teacher Ratios for Selected Years 1980-94

| Year | Primary Schools | | Secondary School | |
|---|---|---|---|---|
| | P/T | P/Tr.T | P/T | P/Tr.T |
| 1980 | 43.4 | 60.5 | 19.9 | 20.5 |
| 1982 | 41.0 | 80.4 | 37.4 | 43.6 |
| 1984 | 41.3 | 101.5 | 28.3 | 48.3 |
| 1986 | 38.9 | 77.5 | 27.6 | 52.6 |
| 1988 | 38.3 | 75.1 | 27.2 | 53.9 |
| 1990 | 34.8 | 67.6 | 26.4 | 54.9 |
| 1992 | 38.5 | 57.4 | 25.5 | 33.1 |
| 1994 | 39.3 | - | 25.5 | - |

*P/T = Ratio of pupils to all teachers*
*P/Tr. T. = Ratio of pupils to trained teachers*

Appendix XV

### Primary School Drop-out Rates for selected Cohorts

| COHORT | DROP-OUT RATES (%) | |
|---|---|---|
| | BOYS | GIRLS |
| 1980/1986 | 17.7 | 29.0 |
| 1981/1987 | 19.9 | 33.5 |
| 1982/1988 | 29.3 | 28.1 |
| 1983/1989 | 21.9 | 25.2 |

Appendix XVI

### Secondary School Drop-out Rates for selected Cohorts

| COHORT | DROP-OUT RATES (%) | |
|---|---|---|
| | BOYS | GIRLS |
| 1980/1983 | - | - |
| 1981/1984 | 10.8 | 20.9 |
| 1982/1985 | 2.8 | 16.4 |
| 1983/1986 | 5.7 | 20.0 |
| 1984/1987 | 13.1 | 24.6 |
| 1985/1988 | 18.7 | 30.4 |
| 1986/1989 | 25.1 | 35.6 |
| **Average** | **12.8** | **20.0** |

Appendix XVII

### Transition Rates for GR7 to F1 and F4 to FLVI

| Year | Grade 7 to Form 1 | Form 4 to Form LVI |
|---|---|---|
| 1980 | - | - |
| 1981 | 85.99 | 19.13 |
| 1982 | 69.49 | 15.34 |
| 1983 | 74.37 | 13.88 |
| 1984 | 82.30 | 12.70 |
| 1985 | 81.75 | 4.81 |
| 1986 | 78.34 | 7.04 |
| 1987 | 70.27 | 6.54 |
| 1988 | 64.99 | 6.98 |
| 1989 | 65.76 | 6.86 |
| 1990 | 67.27 | 6.94 |
| 1991 | 77.60 | 8.18 |
| 1992 | 66.16 | 5.90 |
| 1993 | 65.90 | 6.70 |
| 1994 | 68.37 | 7.65 |

Appendix XVIII

### UNIVERSITY OF ZIMBABWE
### DEPARTME NT OF TEACHER EDUCATION
### EXPANSION IN TEACHERS' COLLEGES SINCE 1980

| Year | No. of Associate Teacher Colleges | Total Enrollment | No. of Certificated |
|---|---|---|---|
| 1980 | 9 | 2,824 | 322 |
| 1981 | 7 | 4,146 | 618 |
| 1982 | 9 | 4,387 | 809 |
| 1983 | 9 | 6,379 | 1,379 |
| 1984 | 13 | 13,443 | 1,958 |
| 1985 | 14 | 9,620 | 2,384 |
| 1986 | 14 | 16,200 | 3,936 |
| 1987 | 14 | 15,355 | 3,780 |
| 1988 | 14 | 17,951 | 3,873 |
| 1989 | 14 | 17,235 | 3,476 |
| 1990 | 14 | 17,845 | 6,676 |
| 1991 | 14 | 17,52§ | 5,597 |
| 1992 | 15 | 15,762 | 4,923 |
| 1993 | 15 | 16,362 | 5,806 |
| 1994 | 15 | 17,709 | |

Appendix XIX

### ENROLLMENTS AT TECHNICAL COLLEGES AND VOCATIONAL TRAINING CENTRES

| Year | |
|---|---|
| 1980 | 3,469 |
| 1981 | 6,048 |
| 1982 | 6,962 |
| 1983 | 7,791 |
| 1984 | 10,373 |
| 1985 | 9,005 |
| 1986 | 11,216 |
| 1987 | 16,784 |
| 1988 | 11,104 |
| 1989 | 9,385 |
| 1990 | 12,877 |
| 1991 | 15,770 |
| 1992 | 19,606 |
| 1993 | 23,044 |
| TOTAL | **163,434** |

# PART III

# POLICY AND LEGISLATION FOR TECHNICAL AND VOCATIONAL EDUCATION TO ENHANCE COOPERATION WITH THE WORLD OF WORK

# CHAPTER 9

# EDUCATION, TRAINING AND EMPLOYMENT IN BURKINA FASO

*Joseph KABORÉ*[*]

## CONCEPTUAL OUTLINE

An international exchange of ideas and experiences exists between specialists of Technical and Vocational Education, the world of enterprises and all who have contributed to vocational training. A single definition of the terminology used in this type of training has been coined.

Terms like technical education, technical and vocational education, etc are generally used without looking for the exact significance or the shortcomings in the given context.

To respond to this requirement, the International Labour Organisation (ILO) has edited a glossary for vocational training.

To begin with, it is necessary to define the main terms used, in the outline of the present discussion on the theme : *Education, Teaching, National Development and Technical and Vocational Education - the Relationship between Training and Employment and Partnership with Industrial, Commercial and Artisanal Enterprises.*

### *Definition of Terms*

*Education, (Teaching)*[1]

Activities aimed at dispensing the knowledge and the understanding of the general principles of application, rather than the acquisition of the practical capacity and knowledge required for a restricted area of professional activities.

Sometimes, the words "Education" and "Teaching" are used indifferently, but the term teaching has a more limited sense and refers rather to activities which are derived within a school system.

The structure of education generally comprises three levels: Primary (at the first level), Secondary (at the second level) and Higher Education. Primary education covers six or eight years of school where the teaching programme is unique (centralised).

Secondary Education covers four or six years which could lead to entrance into university.

Higher Education designates teaching at the post secondary level in all establishments admiting students who have sucessfully terminated second cycle education, where they have attained a higher level. These establishments could be universities, institutes of technology, higher schools of commerce as well as other institutions offering certificates at a level comparable to universities.

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[1] It is useful to refer also to UNESCO terminology in the field of Technical and Vocational Education.

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### *Training*

An assembly of activites aimed essentially at ensuring the acquisition of practical skills, knowledge and the required attitude needed to occupy a job relevant to a profession or determined function, or of a professional group in a cross section of any economic activity.

The general concepts are made of a certain number of sub divisions according to the goals and the level of training, the age group, or other characteristics of people to be trained, the place where the training is taking place, etc.

### *Formal Training*

This kind of training is generally given in school establishments, organisations, or in the training premises. It is generally given in the framework of a structured program where the objective to be obtained is precise, and where there is a defined technique of evaluation (graduation).

### *Non-Formal Training*

A flexible training program, whithout precise structure, which could be rapidly modified and adapted to the needs of each individual and dispensed according to the necessity. The emphasis there is placed on the direct activities associated in the world of work for workers who do not have sufficient resources or the possibility of following formal training.

### *Technical Education*

Teaching which is given at the level of (secondary) second cycle and of higher first cycle, the training of intermediate level personnel (techinicians, and middle level staff, etc.) and at the university level, the training of engineers or technologists destined for higher level functions.

Technical education comprises general education, scientific studies and theoretical techniques, and the acquisition of corresponding practical qualifications. The components of technical education could be considerably varied according to the type of personnel to be trained and the actual level to be trained.

### *Vocational Education*

Teaching geared towards the first level of qualifications necessary to practice a profession or group of professions, this education generally follows the second cycle of secondary education and comprises general instruction, a basic practical training permitting the development of necessary qualifications, for the practice of a determined profession. The relative importance of the different components of vocational education could vary considerably, but the emphasis is generally placed on practical training.

### *Technical and Vocational Education*

This term is used in a broad manner to indicate the educational process when it implies education beyond general instruction, technical studies and the acquisition of knowledge and a practical competency relative to the excercise of certain professions in diverse sections of economic and social life. Technical and Vocational Education is destined towards professional training by its broad educational objective.

### *The National Economic Context*

This is used to situate technical and vocational education in its economic context. That which permits the understanding of its state and explores the strategies for its eventual "dynamism" (evolution). It does not change the essential characteristics of the different sectors of the economy.

### *The Primary Sector*

It includes agriculture, animal husbandry, fishing, fauna and forestry.

#### *Agriculture*

* General Characteristics

The evolution since 1960 is not very significant. Half the production is dominated by traditional archaic instruments.

Small family exploitation is the dominant type of activity. The farming methods are essentially itinerant agriculture, a little mechanical agriculture (animal traction, the use of certain tractors) and little use of fertilisers. This is low productivity work. Production is not very marketable. It is traditional self sustaining agriculture.

* Its place in the economy

Agriculture occupies a preponderant place in the economy.

- At the level of Employment : it represents about 80% of the active population,
- At the level of Gross Interior Produce (P.I.B) it contributes about 18.2%. It is the Principal source of revenue. Agriculture contributes to the satisfaction of the needs of a large majority of the population.

#### *Animal Husbandry*

* Its General Characteristics

In Burkina Faso, animal husbandry with agriculture, constitutes the main stay of the economy. It was also practiced with traditional methods (extensive husbandry, natural fodder products with little marketability).

* Its importance in the Economy

- It contributed 8.5% to Gross Interior Produce.
- It occupied 6.3% of the active population.
- It supplied 1/3 of exportation taxes.

*Fishing , Fauna and Forestry*

* Generalities

This area had a number of problems. The methods used were essentially traditional for fishing, forestry and hunting.

These activities disturbed the equilibrium of resources. The construction of certain large hydraulic works (Kompienga, Bagré) had contributed to a certain knowledge of fishing activities.

* Its Place in the Economy

In the course of the first popular development plan, this sub sector contributed almost 4.7% to Gross Interior Produce.

In total, the primary sector had a weak structure in relation to the model of a modern capitalist economy. The wholesale enterprises in this economy had a marginal existence. They reflected the essential characteristics of ancient traditional activities (primary technologies, half archaic production, weak participation of participators, no marketable production).

*The Secondary Sector*

Here were found buildings, public works, manufacturing and artisanal industries.

*Building and Public Works*

* Generalities

Small scale entreprises were predominant (sub contractors). They existed in certain large enterprises like civil engineering. The majority of them were of foreign origin. The only national enterprise of importance was "l'Entreprise Oumarou Kanazoe".

* Its importance in the Economy

This was one of the most important non agricultural branches of the economy. It was represented in the first five year plan by 7.7% of the Gross Interior Produce.

*Manufacturing Industry*

* Generalities

Its structure : it was dominated by small enterprises, from the point of view of size. Classification is according to the following criteria:

- The big enterprise: more than 30 workers
- The medium enterprise: 15 to 29 workers
- Small enterprise: less than 15 workers.
- Units were divided essentially between the following branches:
  - . manufacturers of food products drinks and tobacco (60% of the production)
  - . textile manufacturers, clothing and leather (18.3%)
  - . chemical industry and fabrication of chemical products (5.6%)
  - . wood industry (2%)
  - . manufacturers of paper (1%)
  - . manufacturers of non-metalic mining products (0.2%).

* Its characteristics

Industry was still at the embryo stage. It was an industrialisation of under development geared towards the substitution of imports with a total absence of heavy industry and with strong external dependency.

Its development was encumbered by the scarcity of qualified personnel, the narrowness of interior market, the elevated production cost due to the enclavement of the country and the price of energy amongst others.

### *Manufacturing Industries, Place in the Economy*

There were 84 units at the beginning of 1990, their contribution to the Gross Interior Produce was weak 5.1%. From the point of view of Employment, it occupied about 6000 workers. The products were essentially substitution of imports for the national market.

### *Cottage Industries*

* General characteristics

They were divided into two; rural and urban.

The first reflected open or closed systems of traditional trade. Practices like activities which contributed towards main speculation like : agriculture, husbandry and fishing (pottery, basket making, forge, dying and weaving, etc.). The rural cottage industry and in particular that which was net housed were essentially practiced during non farming seasons.

The second reflected relatively new professions, with enough modern technology (intermediary technology). Here we saw the following professions: garage owners, electricians, plumbers, ironworkers, etc... These were cottage industries service and production.

Cottage industry had several difficulties, the main ones being scarcity of capital, raw materials, marketing problems, disposal of goods.

* Its place in the economy

The contribution of cottage industry towards Gross Interior Produce was (in the order of) 8.4% from the point of view of employment, the census of 1985 showed that it occupied 528.000 persons with 94.000 with this as their principal activity and 434.000 as auxilary staff.

### *The Tertiary Industries*

#### *Trade*

* Interior Trade

This was dominated by small private individual enterprises. There were some big business companies, generally of old colonial import-export trade and Syrian/Lebanese companies. The public or parapublic enterprises of this sub-sector dealt essentially with the import-export of agricultural and animal produce and the distribution of various merchandise (the control price office of agricultural products such as: OFNACER, FASO, YARR, General Standardization Fund). Interior Commerce had constraints, like the tightness of interior markets and the internal and external enclavement of the country.

* Exterior Trade

Without going into an analysis of its components, we will restate the essential characteristics. The commercial balance had a deficit and structure. The country exported essentially primary products and imported manufactured produce and food stuff.

#### *Hotels, Bars, Restaurants and Tourism*

This sub-sector was still in the embryonic stage. The infrastrucrure of the hotel trade had been improved by about a hundred. The contribution of this activity towards the Gross Interior Produce was about 1.3%. The enclavement of the country was a major constraint on the development of tourism.

#### *The Non-Profit Service of the Tertiary Industries*

Here, we talk about the services provided by public administration. They represented 9.9% of the Gross Interior Produce over the period of the first 1985-1990, five year Development Plan.

#### *Energy*

One can say that this area was equally in the embryonic stage. Firewood constituted 90% of the consumption of energy of the country. Electricity, gas, and water represented only 0.6% of the Gross Interior Produce over the period 1985-1990.

## CONCLUSION

Taking into account our preocupation, this glance at the country's economy allows us to derive certain lessons.

- The primary area was still dominated by a traditional economy of self subsistency. These characteristics made us have little or no need for the products of professional technical education.
- The secondary sector was embryonic. Small enterprises occupied a predominant place. The internal structure of this latter (the exchange of technology) made it a weak consumer of qualified manpower. The paradox was that at the same time a lack of qualified manpower was one of the major constraints towards its development.
- Although, the tertiary sector was very dominant, it was not different from the first two in the demands for technical and professional education.

Does this diagnosis which certainly summaries the economy, entitle us to be preoccupied with questions of the appropriateness of the relationship between training and employment ? Certainly yes.

## RELATIONSHIP BETWEEN TVE TRAINING AND EMPLOYMENT

### *Position of Graduates of Technical and Vocational Education in the Labour Market*

* General Characteristics of the Labour Market

A quick look at the statistics collected at the Labour Office shows that the Labour Market was marked by an important disequilibrum between job seekers and job opportunities.

During the period 1989-1992 the job opportunities only represented 41% of the employment demand. 16.380 opportunities against 144.696 job seekers. The highest placement rate of 16% was registered in 1989.

The configuration of demand and supply showed that placement rates varied depending on the level of instruction and the type of training (ref. Annex. 5).

On instructional levels, one realised that the Middle class and the unemployed with working certificates, had the highest placement rates at 39% and 28% respectively. The last set of people had the qualifications and the professional experience that were required.

The most unfavoured job seekers were graduates from General Education with no other qualification than the C.E.P. and B.E.P.C.

They were generally suited for recruitment into the public service where they held 77% of the available posts, over the period of 1989-1992. The main opportunity for these job seekers remained the public service.

As for the placement rate by the type of training, important variations were noted, 28% for specific or technical trained job seekers; 12% for those with commercial and financial training, 10% for those with administrative and legal training.

### *Progress in the Labour Market of Graduates of Technical and Vocational Education*

The size of the demand of graduates from, technical education partially reflected the reality in the field, because most of the registered job seekers were already working but were still being registered whenever new opportunities from more interesting institutions were offered. However, we could note an overshow of specialists such as accountants, typists, stenographers : short hand typists, electricians, mechanics, topographers and bricklayers.

Besides, specializations like bilingual secretaries, accounting secretariat, and cooling technicans, should be given special attention. For certains specialities like weaving, industrial clothing and fabrication, it was difficult to make a thorough analysis because of lack of statistical information. The holders of these specialities generally set up their own business in the information sector.

In conclusion, unemployment affected graduats of technical and professional education more and more. Certain tendencies showed the necessity to reorganise some of the training areas.

### *Analysis of Demand and Supply of Professional and Technical Qualifications*

#### *Demand of Professional Qualifications*

* The Needs of the Enteprises

Most studies on the employment structures in Burkina Faso outlined the predominance of unqualified manpower (60%) in the enterprises in the private and para-public sectors. This was confirmed by statitistics from the employment service from which it was noted that during the period 1989-1992 the illiterates had mostly benefited from these opportunities. This type of manpower could not follow the growth of technology nor bring fresh impetus to enteprise.

There was therefore the need for expertise, on the part of enterprises (where generally, on the job training is predominant) to raise the general technical level of their staff if they wanted to be well off in the sub-region and in international competition.

Another aspect of needs for professional qualification could be perceived through the unsatisfied employment opportunities recorded by the labor services. In fact, even though the employment opportunties covered only 11% of demand, there often existed, non-satisfied opportunities.

During the 1989-1992 period one hundred and two (unsatisfied) job opportunities had been counted. Some of the causes of the unfilled openings were :

- the experience criteria required by employers;

- the professional polyvalence requirements (secretary-short-hand typist with computer experience for example);
- scarcity or non existence on the market of certain required training specialist programmes. This was the case with senior technicians in laboratories electronics, building trades, civil engineering, management, trade and accountant/secretaries.

*Potential Needs*

Considering the preceeding development in the economic context, it was evident that the estimation of potential training needs should refer essentially to the priority given by the government to the agro-industry as industrialization strategy. Besides, the necessity to modernize and rationalize the organization and the management of enterprises, the vital role that the craft sector played in the socio-economic life of the country should have been equally taken into account.

*Industrialization Strategy based on the Agro-Industrial Development*

In this perspective, a certain number of constraints had been noted, which indicated the need for development of professional training. These were among others; the archaic nature of the commercial information system, the absence of a positive strategy of support to the development of technological innovations, the rudimentary character of support services for good functionning of industry (management, surveys, engineering, advising, maintenance), the poor level of organization and management of enterprises (an under controlled technical production process, bad maintenance, non rigorous management).

***Modernize and Rationalize the Organization and the Administrative and Financial Management of Enterprises***

With the setting up of the Structural Adjustment Program (PAS) the government was withdrawing progressively from competitive sectors and companies and privates were invited to take over in all the areas of economic activity. Creation of agricultural enterprises, setting up of units for treatment of fruits and vegetables, administration of classified forestry or (converted/spaces) administration of posts with water autonomy, maintenance of materials, education, healths, creation of estate agencies and building societies, etc.

The criticism that could be raised regarding the functionning of enterprises, found their origin essentially in the fact that the entrepreneurs mostly did not have the least notion of management and organization. Some were even reluctant to employ qualified personnel and even to get themselves trained or undergo refresher courses.

### *The Important Role of the Craft Sector in the Economy*

The 1985 census data indicated that craftmanship was the second job supplier. Despite the lack of statistics to estimate the training need, studies indicated that only 6% of craftment had attended school. The problem of qualifications of craftmen had been identified as one of the major obstacles to the competitiveness of their products.

However, it was a sector which had its peculiarities and requirements and very few institutions were actually capable of meeting the requirements of the training of adults.

The problem was mainly to provide craftmen with better training/refresher course opportunities with specific characteristics such as: illiteracy, regional disparities, duration size and organization of the training.

The recognition of the role of the craft sector to be preponderant in economy implied the development of certification systems to be used to measure, evaluate and recognize the specific qualifications, useful in active life. They should also be subjected to receive the agreement of social partners and be valorized as a formal recognition system, independant of the mode of access to qualifications. The system of evaluation and recognition of qualifications based on the sole criteria attesting success in shcool was no longer satisfactory.

## TECHNICAL AND PROFESSIONAL QUALIFICATIONS

* Review of Characteristics of the Actual System

In Burkina Faso, there are two types of training:

- the conventional vocational training, the formal technical and vocational education
- the non-conventional professional training, the non-formal TVE.

The formal TVE was composed of public or/and private technical education schools and the public or national professional training centers.

### *Technical and Vocational Education*

This area was hardly developed in terms of size, it represented less than 6% of the population of the secondary school, with an annual increase of 6.7%. The predominance of commercial training over industrial education could be noted. So, out of twenty eight (28) recorded schools in 1990, only eight (8) offered an industrial training against (20) essentially private schools in commercial education.

Technical education was highly concentrated in the biggest urban centers.

Besides, it is important to indicate an absence of secondary technical agriculture school, an insufficiency in the number trained for commercial (B.E.P.) Professional advance level and especially industrial, and a complete inexistence of B.T. (Senior Secondary graduates in Agricultural Science) or B.T.S.

### *The Formal Technical and Vocational Education Centres*

These centers mostly depended on government and its channels. They were conceived and managed outside the Ministerial departments specialized in education (MEBAM, MESSRS[2]) and without good coordination with the development requirements in the area of training.

In general, these conventional professional training centers insured the sustained training of workers and also offered initial training to newly recruited candidates, in order to satisfy the needs expressed by the directing ministerial departments.

In 1990, twenty five (25) professional training centers with limited infrastructural capacities had been denoted. Besides, most of these centers, today, were facing multiple problems that block their evolution, and even their perenity. As an example, the absence of good structuring of these schools, the inappriopriatness of the instutional setting, the irregularity of recruitments which had been blocked for a long time. Some sub-regional organizations had set up training and refresher course centers and institutes (EIER, ETSHER, IPD/AOS).

### *The Non-Formal and Vocational Education Centres*

In Burkina Faso, Non-Formal Professional Training was essentially offered within the context of the Promotion of the rural world, and urban and rural cottage industries.

The centers which were responsible for this type of training were principally under the tutelage of the Ministry of Agriculture and Animal Resources, Ministry of Labour, Ministry of Works and Social Security and Family (center of intergration and social promotion). These centers addressed themselves essentially to those who had not been to school or those who dropped out of school very early without having the First School Leaving Certificate (FSLC).

These centers were 19 in number in 1987 and had a relatively limited infrastructural capacity. Their training was primarly on agriculture, animal husbandry, weaving, basket making, carpentry, woodworks, mechanics, electricity, embroidery, sewing, forge, leather works, masonry, ironworks. Parallel to these state structures, certain organisations like CESAO, INA also intervened especially in the rural area.

Other characteristics of Non-Conventional Professional Training were that it did not in the first place, provide salaried employment for people leaving the centres. They usually worked in the informal sector.

Besides these two types of professional training, it was necessary to take into account correspondent courses, field trips, seminars, on-the-job taining which were equally some form of acquisition of professional knowledge. Despite the efforts undertaken since the last decade, technical and professional training still remained in an embryonic stage.

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[2] MEBAM : Ministry of Basic Education and Literacy.
MESSRS : Ministry of Secondary and Higher Education and Scientific Research.

### *Limitations of the Training System*

Technical education and vocational training suffered in general from important gaps at different levels.

#### *At the Level of Technical Education*

The main problems could be summed up as follows:

- The lack of opening of technical education on socio-economic environment.
- The consequences were on the one hand, the inadequacy of programmes and on the other hand a pedagogy oriented towards a modern and salaried sector. Also, school leavers from the system lacked creativity and innovation. They were reproached as having an insufficiency of logic in the creation of entreprises or very simply, the initiative of self-employment.
- On the insufficiency in the numbers and quality of teachers, it was necessary here to add the absence of reorientation courses for teachers.
- the insufficiency or the lack of teaching materials, pedagogic reports and the decay of equipments.
- The rigorousness of the system and lack of flexibility and continuity.

#### *At the Level of Vocational Training*

The main limitations which could be listed are amongst others :

- The absence of a coherent policy of Professional Training. In effect, there did not exist a legislation or a regulation in the area of professional training.
- The absence of the coordination of training activities and the absence of the implementation of partners (state, employers, workers) in the management of Professional Training.
- The absence of control and the evaluation of training institutions.
- The lack of pedagogic supervisors.
- The insufficiency of offering Professional Training in whatever its form may be (continuous Professional Training, apprenticeship, field trips in entreprises).
- The lack or the insufficiency of offering training in the informal or artisanal sectors.
- The absence of a funding body for professional training. In particular the apprenticeship employer (TPA) which had been conceived to be a contribution of employers for the funding of professional training had never been used for that purpose.

In general, it is necessary to say that the limitations of the actual system contribute to the absence of national and political strategies with the consequence of making planning difficult, as well as the lack of coordination and dialogue to ensure harmonisation and coherence of actions in the field of professional training.

## PERSPECTIVE FOR BETTER TRAINING-EMPLOYEMENT RATIO

The economy of Burkina Faso is in a period of crisis and implementation of advocated economic reforms have not yet reaped the expected results at this stage.

The consequences are:

- The aggravation of unemployment of numerous youths following the restructuring or the shuting down of entreprises, the massive entry of educated youths into the labour market and the limitations of recruitment in the public service.
- The general decline in effective demand for enterprises to create new jobs.

This one of the main principles characterising the macro-economic context which must be imperatively kept in mind in the review of the relationship between the training system and the needs of the labour market. Based on this perspective, the following aspects must retain the attention of all the actors and intervening parties:

- If the objective of technical and professional education remains training salaried technicians, the problem of appropriateness is likely to always be there whatever their qualifications and their performance, regarding the limited economic ability.
- The development and judicious use of human resources is an indispensable link in economic development. Burkina Faso is situated in the context of liberalisation of exchanges and a perspective of sub-regional integration; so a high qualified manpower allows an increase in the productivity of labour and improves the level of competitiveness in the economy. Using this strategy of interprise investment, the existence of abundant manpower is no longer the required criteria, but rather the quality and the level of professional qualifications of this manpower. In the same way, the development of diverse professional training programmes provides the different beneficiaries with alternatives to enter the world of work because they have important abilities : capacities to exploit opportunities offered, aptitudes to develop self-employment intiatives. With this point of view, it is preferable to see the problem in terms of improving the relationship between training and employment. To reach this objective, certain numbers of obstacles need to be removed.

### *Obstacles to be Removed*

i. The training-employment ratio supposes the outline of real links that exist between the strategies of global or sectorial macro-economic development and the technical and professional training policies, but in the case of Burkina Faso it is first of all this strategy of development which is less and less controlled in the context of structural adjustment where short term preoccupations for equilibrium takes precedence over development planning.

This aspect is worsened by a lack of coordination and dialogue in order to ensure harmonisation and coherence of policies. These handicaps can be placed at several levels : relations between ministries in charge of professional and technical training on the one hand, the government and the employing organisation and workers on the other hand.

ii. The incapacity of government to control its technological options. One phenomenon which explains this is the fact that a good portion of public aid is in the form of support in the balance of payments which could be explained by the easiness of importation. Besides, the multilateral aid fixed conditions of international tender offers, which favour the importation of technology. Involvement of researchers, academicians and other scientists in the country in the research and application of technologies appropriate to the needs of real development of the economy is completely ignored.

iii. The financial and budget constraints lead government authorities to operate a choice in budget allocation according to the order of announcement priority. In such a context, technical and professional education whose importance is still insufficiently understood is always put on short portion (they don't allocate enough funds for education because they do not yet see its importance).

## RECOMMENDATIONS

- The clear definition of the role, the place and the objective of technical education and professional training based on an indepth knowledge of the economic issue.
- Harmonisation and coordination of policy strategies and means in the area of technical education and professional training. This should be done through the creation of a mechanism of coordination between the different institutions, the preparation of a document to clarify the role and the attributions of the different institutions.
- Setting up of a National Council of Professional Training composed of Government, economic operators, workers, and training institutions. The council will have the responsibility of choice and the orientation of each sector and their implementation.
- Setting up an Observaory on Employment would regularly provide training in institutions with reliable information relating to the growth of the labour market.

ANNEX 1

## Sectorial Contribution of Gross Interior Produce in %

| SECTOR | % |
|---|---|
| Primary | 31.7 |
| Secondary | 22.9 |
| Tertiary | 41.8 |
| Law and Importation Taxes | 3.6 |
| **Total** | **100** |

*Source : 2nd phase of the five year plan on popular development*

ANNEX 2

## Distribution of the Population According to the Level of Activity

| CATEGORY OF THE POPULATION | SEX | | TOTAL |
|---|---|---|---|
| | *MALE* | *FEMALE* | |
| Active Population | 2,366,071 | 2,218,705 | 4,584,776 |
| Inactive Population | 424,583 | 749,615 | 1,174,208 |
| **Total Population** | **4,444,516** | **4,610,571** | **9,055,087** |

*Source : INSD Demographic Questionnaire 1991*

ANNEX 3

## Active Population According to Sector of Activity and Area of Residence

| ACTIVITY SECTOR | AREA OF RESIDENCE | | |
|---|---|---|---|
| | *Urban* | *Rural* | *Burkina* |
| Primary | 44,9 | 97,8 | 93,2 |
| Secondary | 10,0 | 0,6 | 1,4 |
| Tertiary | 25,1 | 1,6 | 5,4 |
| **Total** | **100,1** | **100,0** | **100,0** |

ANNEX 4

## Distribution of the Occupied Active Population According to their Level of Education, Sex and their Area of Residence in %

| AREA OF RESIDENCE | LEVEL OF EDUCATION | | | | TOTAL |
|---|---|---|---|---|---|
| | *Any* | *Primary* | *Secondary* | *Higher* | |
| ***Urban*** | | | | | |
| M | 89,4 | 8,1 | 2,0 | 0,5 | **100,0** |
| F | 06,1 | 3,0 | 0,8 | 0,1 | **100,0** |
| ***Rural*** | | | | | |
| M | 58,6 | 24,2 | 12,8 | 4,4 | **100,0** |
| F | 76,8 | 13,1 | 8,8 | 1,3 | **100,0** |
| ***Burkina*** | | | | | |
| M | 93,0 | 6,2 | 0,7 | 0,1 | **100,0** |
| F | 97,8 | 2,0 | 0,2 | 00 | **100,0** |

*Source : Demographic Questionnaire 1991*

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ANNEX 5

## JOB APPLICATION - EVOLUTION
*LEVEL OF EDUCATION (1989-1992)*

| YEAR | 1989 | | | 1990 | | | 1991 | | | 1992 | | | TOTAL (1989-1992) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Level of Educat | *D* | *O* | *O/D* | *D* | *O* | *O/D* | *D* | *O* | *O/D* | *D* | *O* | *O/D* | *D* | *O* | *O/D* |
| Illiterate | 24469 | 3793 | 15% | 26542 | 2469 | 9% | 19274 | 2396 | 12% | 15725 | 1900 | 12% | 86010 | 10558 | 12% |
| FSLC | 6218 | 275 | 4% | 6376 | 304 | 5% | 6193 | 210 | 3% | 5250 | 310 | 6% | 24002 | 1099 | 4% |
| O/L | 4664 | 810 | 17% | 5861 | 632 | 11% | 5820 | 494 | 8% | 5350 | 483 | 9% | 21695 | 2419 | 11% |
| A/L | 953 | 254 | 26% | 1222 | 153 | 12% | 1486 | 185 | 12% | 1651 | 161 | 10% | 53122 | 753 | 14% |
| Higher Technical Diploma | 275 | 159 | 58% | 279 | 130 | 46% | 345 | 110 | 32% | 330 | 82 | 25% | 12299 | 481 | 39% |
| Degree & more | 965 | 154 | 16% | 1225 | 146 | 12% | 1355 | 153 | 11% | 1263 | 157 | 12% | 4808 | 610 | 13% |
| No qualificat° | 558 | 156 | 28% | 484 | 148 | 30% | 348 | 121 | 35% | 250 | 35 | 14% | 1640 | 460 | 28% |
| **Total** | **38102** | **5601** | **15%** | **41989** | **3982** | **9%** | **34821** | **3629** | **10%** | **29784** | **3128** | **10%** | **14469** | **16380** | **11%** |

ANNEX 6

## EVOLUTION OF THE SITUATION OF THE LABOUR MARKET OF GRADUATES OF TECHNICAL SECONDARY EDUCATION - 1988-1992

| YEAR | 1988 | | | 1989 | | | 1990 | | | 1991 | | | 1992 | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Level of training & Profile | *D* | *O* | *D/O* | *D* | *O* | *D/O* | *D* | *O* | *D/O* | *D* | *O* | *D/O* | *D* | *O* | *D/O* | *D* | *O* | *D/O* |
| Holders of CAP or its equivalence | | | | | | | | | | | | | | | | | 1 | |
| Agriculture Agents | 5 | 1 | 4 | 14 | - | 14 | - | - | - | - | - | - | - | - | - | 19 | 1 | 18 |
| Livestock Technicians | - | - | - | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - | 2 | 1 | 1 |
| Accounting Secretariat | - | - | - | - | - | - | - | 1 | -1 | - | - | - | - | - | - | - | 1 | -1 |
| Assist. Accounting Sec. | 516 | 135 | 318 | 634 | 162 | 472 | 792 | 106 | 686 | 983 | 75 | 908 | 943 | 37 | 906 | 3868 | 515 | 3353 |
| Electricians | 51 | 21 | 30 | 46 | 32 | 14 | 66 | 8 | 58 | 59 | 14 | 55 | 68 | 3 | 63 | 300 | 78 | 222 |
| Stenographers | 79 | 31 | 48 | 103 | 25 | 78 | 128 | 18 | 110 | 164 | 26 | 138 | 143 | 24 | 119 | 617 | 124 | 493 |
| Mechanics | 106 | 45 | 61 | 110 | 71 | 39 | 112 | 21 | 91 | 128 | 20 | 108 | 109 | 7 | 102 | 565 | 164 | 401 |
| Welders | 9 | 6 | 3 | 16 | - | 16 | 22 | 2 | 20 | 32 | - | 32 | 19 | - | 19 | 98 | 8 | 90 |
| Topographers | 13 | 3 | 10 | 9 | 8 | 1 | 6 | 4 | 2 | 5 | - | 5 | 3 | 2 | 1 | 36 | 17 | 19 |
| Electronicians | 19 | - | 19 | 13 | 3 | 10 | 11 | 1 | 10 | 17 | - | 17 | 5 | 1 | 4 | 65 | 5 | 60 |
| Designers | 14 | 6 | 8 | 22 | 14 | 8 | 23 | 14 | 9 | 33 | 7 | 26 | 36 | 9 | 27 | 128 | 50 | 75 |
| Electro Mechanicians | 39 | 47 | 8 | 46 | 24 | 22 | 4 | 13 | -9 | 61 | 32 | 29 | 53 | 2 | 51 | 203 | 118 | 85 |
| Dactylographers | 556 | 55 | 501 | 684 | 91 | 593 | 752 | 78 | 674 | 96 | 49 | 47 | 58 | 27 | 31 | 2146 | 300 | 1846 |
| Carpenters | 8 | 3 | 5 | 17 | 1 | 16 | 23 | 2 | 21 | 21 | - | 21 | 17 | - | 17 | 86 | 5 | 30 |
| Laboratory Tech. | - | 1 | -1 | 4 | 3 | 1 | 10 | 2 | 7 | 5 | 2 | 4 | 1 | 1 | 0 | 21 | 10 | 11 |
| Public works Conductors | - | - | - | - | - | - | - | 1 | -1 | - | - | - | - | - | - | - | 1 | -1 |
| Animators | 74 | 30 | 44 | - | - | - | 86 | 25 | 61 | 78 | 32 | 45 | 65 | 49 | 16 | 303 | 136 | 167 |
| Customs Officers | 10 | 1 | 9 | 5 | 23 | 18 | 4 | 2 | 2 | 12 | 11 | 1 | 6 | 3 | 3 | 37 | 40 | -3 |
| Masons | 22 | 3 | 19 | 40 | 3 | 37 | 51 | 5 | 45 | 66 | 15 | 51 | 58 | 7 | 51 | 237 | 34 | 203 |
| Agricultural Tech. | 7 | - | 7 | 14 | 7 | 7 | - | 21 | -21 | - | - | 1 | 8 | 5 | 3 | 29 | 33 | -4 |
| Bank Employees | - | - | - | 3 | - | 3 | 1 | - | 1 | 4 | - | 4 | 2 | - | 2 | 10 | 1 | 10 |
| Clearance Officers Freight | 1 | - | 1 | 4 | - | 4 | 3 | - | 3 | - | 1 | -1 | 4 | - | 4 | 12 | 1 | 11 |

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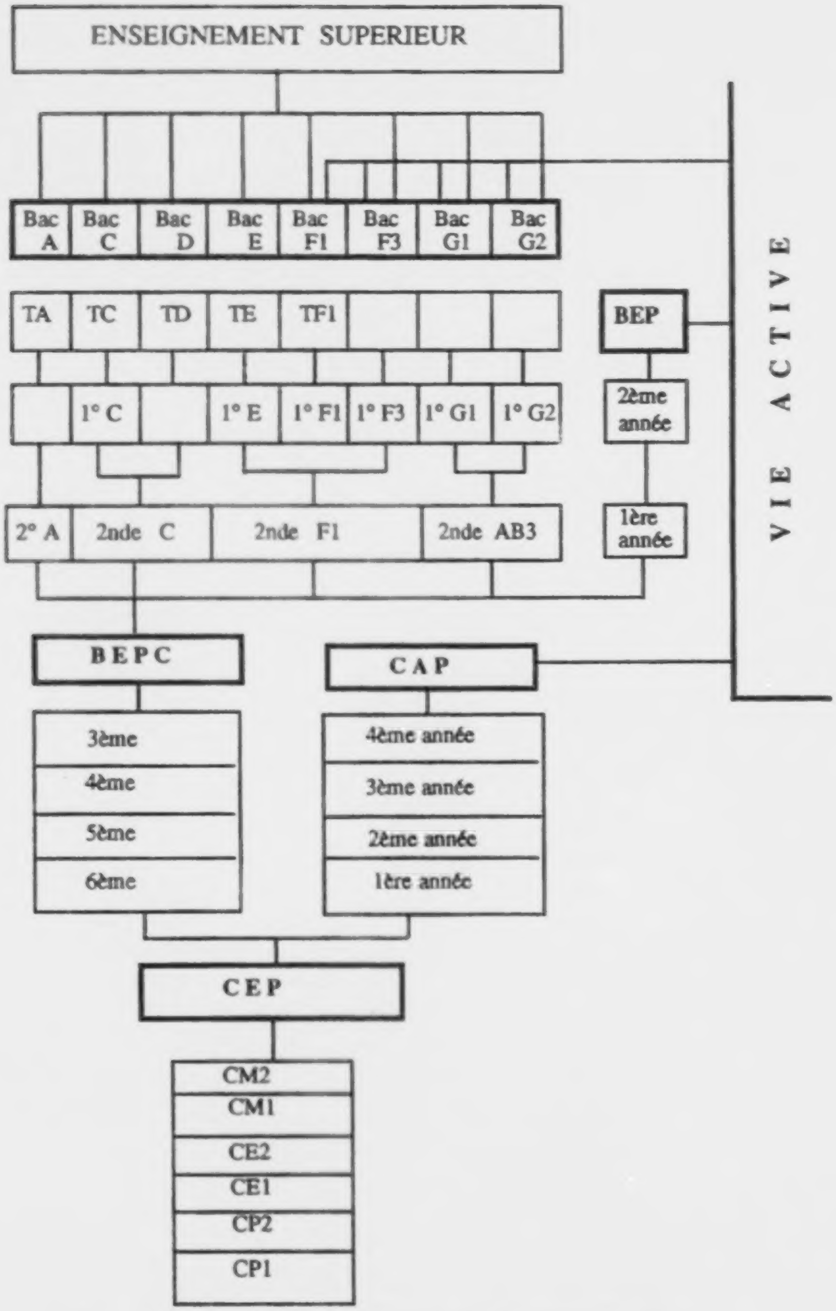
ANNEX 7

## Training and Diplomas - Technical Training (Census of Certificates)

1. **Level V** CAP (17 Specialities)
BEP (05 Specialities)
- *Commercial CAP*
Accounting Aid
Stenographer
Bank Employee
Office Workers
- *Indistrial CAP*
Metal Workers
Electro Mechanics
Electronicians
Motors Electricians
General Mechanics
Construction Masons
Design Masons
Mechanics
Auto Mechanics
Carpenters
Rural Family Economists
Clothes Manufacturing Industry
Embroiderists
Weaving
- **Commercial BEP**
Accountants
Secretaries
Computers Specialists
- **Industrial BEP**
Geometric Topographer
Cooling and Heating Engineers

2. **Level IV** - BAC (07 Series)
*Technical Advance Level*
- **Commercial**
Secretaries
Accountants
Computer Specialists
- **Industrial**
Metal Workers
Electronic Engineers
Electricians Technician
Mathematicians and Technologists

## STRUCTURE DU SYSTEME EDUCATIF
## BURKINA FASO


ENSEIGNEMENT SUPERIEUR
Bac A
Bac C
Bac D
Bac E
Bac F1
Bac F3
Bac G1
Bac G2
TA
TC
TD
TE
TF1
BEP
1° C
1° E
1° F1
1° F3
1° G1
1° G2
2ème année
2° A
2nde C
2nde F1
2nde AB3
1ère année
VIE ACTIVE
BEPC
CAP
3ème
4ème
5ème
6ème
4ème année
3ème année
2ème année
1ère année
CEP
CM2
CM1
CE2
CE1
CP2
CP1

NB : il existe une terminale F2 (TF2) depuis la rentrée 1990/91

# CHAPTER 10

# COOPERATION BETWEEN TRAINING INSTITUTIONS AND THE INDUSTRIAL COMMERCIAL AND AGRICULTURAL ENTERPRISES IN CÔTE D'IVOIRE

*Aska KOUADIO*[*]

## INTRODUCTION

The education conducted by technical and vocational institutions aims at training, in a school setting, skilled workmen, technicians and engineers working in the larger sectors of the economy. These institutions provide one specific aspect of education. Their goal is to provide intensive vocational training, but as of now they are not appreciated, therefore, they do not occupy the place they would normally deserve. Critics consider them as an instrument of training of unadapted products.

For us, this usury phenomenon can be explained by the lack of fruitful exchanges with in industries, craftsmanship and agriculture, also the absence of a pedagogic organization associating all partners in the technical and educational education system, a "bridge" could be set up between the technical and vocational training institutions and the employment world. Our study treats this cooperation, which is considered to be absolutely necessary for the adaption of the trained products to the professional world.

I take the opportunity to thank UNESCO-BREDA for helping us conduct this reflexion in the context of its activities. Thanks also, for the collaboration, of the technical and vocational education coordinators in Ivory Coast, especially:

- the coordinator for the technical synthesis of the National Institute of Technical and Vocational Training (INFTP);
- the coordinator for the relations with the enterprises of the Higher National Institute of Technical Education (INSEP);
- the trainers of the National School for Technical and Vocational Education (IPNETP).

## IDENTIFICATION OF PROBLEM

For a better link between schools and the economic environment training activities incontestably constitute today the subject of discussion among African countries which are interested in questions of education.

Studies reveal that relations between education and the world of production are breaking down, instead of improving as years go by. Qualified students wanting first jobs are more and more numerous. Search for salaried jobs has become a nightmare. According to Philip H. Coombs, this situation is due to a demand which has grown far beyond the opportunities. The bold objectives set up since independence, the important promises for spreading education, he writes, sharpened to the highest degree, the expectations of populations and provocated on their part, a demand for education which grew beyond control like a snow ball.

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Other critics outlined the unsuitable nature of programs, and training contents, to the opportunities offered and to the needs of national economies which created a disequilibrium between the training levels and mainly among specialties. This trend, we quoted, is partly due to the lack of equilibrium between the profile of the educational systems outputs and the required qualifications. Therefore, one is finally confronted with three particulars which are often contradictory when African educational systems are tackled:

- the preoccupation of training future generations;
- the trouble with the results of this training;
- and the difficulty to make the training match the employment.

This led Gneba Akpale Jacob to say that "school in Africa leads to unemployment and inadaptation. It can hardy be a development factor and motor". Various recommendations for reforms, renovations and innovations in Africa were aiming to "break a heavy heritage: not only to train the spirits but to provide a training to help the citizen integrate normally and easily to the different wheels of the society in which he lives and should participate effectively as an active member".

Therefore, the search for a broader equilibrium between training and the economic context is considered today an accurate problem in Africa. The educational formulas advocated and subscribed by national and international organizations usually deal with technical and vocational training. This is evident through these recommendations and studies and also through speeches that the acquisition of practical knowledge and useful qualifications cover a variety of apprenticeship activities leading directly to employment. The technical and vocational training therefore becomes an incomparable instrument of social promotion and economic development.

In Côte d'Ivoire, however, many graduates from technical and vocational education structures every year inflate the already heavy number of unemployed or other graduates in search of first jobs. Some studies, in their approach to find a solution to this problem, suggest that technical and vocational education completely comply with the requirements employment by "setting up training interesting to the industrial, commercial and agricultural enterprises of the locality". The present crisis helps this patronage put more pressure on the technical and vocational education system by emphasizing during meetings or seminars the needs for employment oriented training which our technical and vocational education cannot satisfy - What is the "good training" that guarantees employment, at a time when whole sectors of economic activity collapse, and massive dismissals are made every day ? For us, it is no more a question of merely accusing the training system in the training - employment disequilibrium.

On the contrary, the work on which researchers should presently focus their attention, is this question on the relationship which exists or should exist between the training system and the other systems of production. Is there a complementary cohabitation between the systems, or are the different aspects of connection rather ruptured? In other words, the question is to know whether the technical and vocational training and the world of industrial, commercial and agricultural production are not two fields which develop independently and are governed by specific laws.

To tackle the problem of balance between the training institutions and the industrial, commercial enterprises, is at the same time, to contribute to the effective setting up and reinforcement of a cooperation in the conception, implementation and evaluation of technical and vocational training programs. This study which falls within the activities of UNESCO-BREDA, and which is based on the case of Côte d'Ivoire, is a way to specially suggest ways and means to:

a) adapt the technical and vocational educations programs to the economic needs;[3]

b) improve the cooperation between the different parties involved in the training activity.

This is why, it is important to question the existing practices presently ongoing in Ivory Coast in this field and identify the nature of encountered difficulties in order to reveal suggestions for a more dynamic cooperation. It should be noted here that we are interested in the institutions which are administered by the Ministry of Technical education and vocational training (MET/FP). Technical schools under the technical ministries do not fall under this study.

## EXISTING SITUATION

Following the enthusiasm of 1960 (independence year) a technical and vocational training system was constituted with various functions: technical education "schools, "vocational training" centers, "follow-up training" centers. But this diversity is balanced and this is without any doubt, original with Côte d'Ivoire. Technical education, vocational training, and refresher courses are linked together and could mutually profit each other. These types of consolidated education give way to two categories of structure. The employment oriented structures, and structures preparing for higher technical education.

The employment oriented structures are divided into three categories:

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[3] S.MILLOT B, Diploma and Unemployment of graduates syndrome, The case of Ivory Coast, Abidjan 1981.

### *Workmen and Skilled Employee Training Structures*

This category is composed of all the training institutions which provide a 3 years CAP training (Certificate d'Aptitude Professional) in particular branches of industry (mechanic), trade, wood, agro-mechanic, etc. The target group is represented by holders of CEPE with level 2 x (5eme) general education. These schools are commonly called "vocational training centers" (C.F.P.). In this category we find the technical education colleges (C.E.T) whose training programs lead to the Certificate of Vocational Studies (B.E.P) in 2 or 3 years depending on the level 3 or 4 (4e ou 3e) of general secondary education.

### *Technicians Training Structures*

This training is provided by the vocational colleges of education which welcome students from the general education colleges who hold an O'level Certificate (BEPC). These years of study lead to the Technician Certificate (B.T.) which is known as a vocational specialty : administrative and accounting techniques, industrial techniques, public works, food and agriculture, hotel trade.

### *Higher Technicians and Engineers Training Structure*

They are all grouped in the Higher National Institute of Technical Education (INSET). INSET in fact is composed of several schools of the industrial and tertiary sectors with the aim of training higher technicians and engineers. The different categories of schools can be globally structured as follows:

### *Higher School of Engineers*

They are ENSIA, ENIS, ESEI. Over a period of 5 years after the advanced level certificate, (Baccalaureat) training in these structures is versatile or specialized and deals with the following subjects: mechanics, electricity, energy, industrial engineering, electronics, electro-techniques and computer science.

### *Higher School of Trade and Management of Enterprises*

I.I.I Institute of Industrial Technology which trains in two or three years, higher technicians of different specialties: mechanics, electronics, electro-technique, industrial maintenance, chemistry, food engineering.

### *School of Higher Tertiary Industries Technicians*

It is composed of four structures, which train in two years after the advanced level certificate, higher technicians of commercial management, finance, accountancy (I.S.C) insurance, transportation logistics (I.T.T), management information system , computerized management (ISI) Directorate secretariat (ISS).

*Structures preparing for Higher Technical Education*

They are technical colleges of education composed of long section education (three years after the level) which lead to advanced level F and G certificates These structures provide a longer term training in order to help the graduate students envision a "honorary career". Three technical colleges of education are conceived for that purpose : Cocody Technical College of Education, Yopougon and Bouaké Technical College of Education.

In searching for consolidated development strategies, continuous vocational training (FPC) for the sectors of technical and vocational training and industrial, commercial, craftsmanship and agricultural production, Côte d'Ivoire has set up the continuous vocational training which helps the salaried staff better meet the requirements of jobs which are offered to them and which favor *"the Ivorization of posts"*. Continuous vocational training is extended at all levels of qualification in order to:

- improve the qualification of personnel needed in the enterprises;
- accelerate the process of Ivorization of staff;
- ensure social promotion of each worker.

To achieve these objectives, law voted by the Parliament in November 1977 which imposes on enterprises a 1,2% tax on total salaries for funding continuous vocational training. Thus, all employment-oriented structures of technical and vocational training are involved in this training. They operate in liaison with the professional world by studying the demand, elaborating the action plan, implementing the plan and evaluating the action.

## TEACHING PRACTICES

All technical and professional training structures in Côte d'Ivoire have adopted the rhythm of full time study. However, in addition to the classroom, the workshop has become a new setting which is more or less like the future professional setting. Working groups are organized under the supervision of a professor who teaches the future job techniques to students, who are being trained for either a CAP, a BEP, a BT, BTN, DUT or an Engineer diploma. Certain structures opt for an alternating study scheme. Time is divided between classroom education and on-the-job training. This is the case in vocational training centers for apprentices have count several periods of on the job training during a school year. Other structures, integrate the practical training which are advantageous because they constitute concrete possibilities to verify the theoretical education and means of modifying the analyzed situation.

The practical training, therefore, can better explain the theory practice relationship and help the students take position in various places where points of view are organized.

It is in this respect only, that one can really talk of a training which more opens up the employment world or active life. Training structures (INSET for example) give shape to that opening with industrial project studies. In Ivory Coast, the periods of job practice, their nature, their duration and their objectives depend on training institutions. "Short term" training institutions (two year training) particularly like on-the-job training (in first year). This short training initiates the students to life in enterprise. In the second year, specialized job practices are organized to help the students better apprehend a job position. Generally, these types of job practice last for four months and lead to writing and defense of a thesis. The engineers training institutions, in addition to the two forms of job practice described above, initiate a third form; long term job practice (six months) devoted to the conception and the creation of prototypes, submitted for appreciation by an examination jury at the end of the engeering studies. In all cases, a professor is designated to supervise the trainee, by the training institution. Moreover, a professional in that profession job is designated by the enterprise to be the training coordinator. The problem often encountered lies in desertion by one of the supervisors.

### *Determination of Training and Contents*

Until recently, training programs and contents were modelled on those of France in order to maintain the same value diplomas that were awarded. Today, the preoccupation of adapting the technical and vocational training to the Ivorian professional world forced the pedagogic leaders to act differently. Project teams are often set up with different parties (training teachers, referred enterprise leaders, etc.) The work consists of indexing the training needs based on the punctual studies carried out by the technicians of the National Professional Training Office (ONFP). These studies are updated by project teams by means of surveys that are conducted with the professionals of referred enterprises.

Today, french programs are no more than a reference in the research of training programs and contents, original and adapted to the means of production of the Côte d'Ivoire enterprises. However, there are cases where the training structures in the determination of their training programs and contents operate independently. The work is given either to teachers, or to I.P.N.E.T.P. (National Pedagogic Institute of Technical and vocational Education) in view of harmonizing the contents.

### *Training of Trainers*

In Côte d'Ivoire, the National Pedagogic Institute of Technical and Vocational Education (IPNETP) is the unique school which is entitled to train teachers of technical and vocational education institutions. To be able to do so, IPNETP recruits new graduates from technical schools, as well as job professionals who have the required experience. The training is divided in two modules: module 1 (M1) is meant to put all students on the same level, module 2 (M2) treats technological training and module 3 (M3) pedagogic training. IPNETP, like INSET, organized periodic seminars animated by job professionals in order to promote exchanges in view of updating the training. On the other hand, training departments devote part of their earned time to interventions in enterprises: marketing studies, training, counselling, etc.

Once the training is over, the trainees are assigned as teachers to different public structures of technical and vocational training. They are given recommendations by the IPNETP supervisors regarding the tripartite relations (School-enterprise-IPNETP) in order to update their educations.

## CONDITIONS AND ELEMENTS OF COOPERATION

Based on the existing results of our various discussions with the directors of the technical and vocational training structures responsible for the implementation of the training institutions-enterprises relationship, we have the impression that there is a lack of cooperation. The different partners do not cooperate responsibly. Serious difficulties exist and persist as years go by. Those difficulties are encountered as well in the nature of the collaboration as in its phase of effective implementation.

### *Nature of the Collaboration*

The participation of enterprises in the creation of technical and vocational training branches does not suffer from any irregularity. The Professionals approval of this idea is complete. The composition of certain project teams (project creating vocational colleges of education for example) is evident in that all parties involved are represented. The preoccupation of all parties is to help the orientation of training institution to match the present and evolving realities of enterprises. It is therefore not surprising that technical and vocational training structures could have established for years relationship with the professional classes to which was intended for the graduates.

On the financial aspect, the apprenticeship tax which application conditions are stated by the law of November 1977, helps industrial, commercial and agricultural enterprises participate in training activities approved by the National Regulation Funds FNR. During the first years of application of this law, the Patronal Union of Côte d'Ivoire (UPACI) campaigned to urge those liable not to be satisfied with paying their dues to the Public Treasury. This is how enterprises organized themselves in order to attract part of these moneys to themselves or to training institutions that they manage or sponsor. In the [4] same way, the schools providing training that fall under this law, addressed themselves directly to heads of enterprises in order to urge them to pay all or part of their apprenticeship tax.

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[4] In summary all schools with the aim of preparing for craft, industrial or commercial jobs when largely speaking.

But, apart from the participation in the project teams for the creation of education branches and the financial support made by the apprenticeship tax, the training structures also manifest their relations with the professional class through various other aspects, and particularly with the definition of programs and pedagogic procedures taking into account the needs expressed by these same professional classes. Here, the relations are not also close. Teachers of the technical and vocational education institutions and the heads of enterprises do not always speak the same language: "you are too theoretical" one says: *"we propose a complete training"* answers the other.

So, depending on whether the training is of interest or not, the enterprises (especially big ones) reinforce their collaboration which sometimes lead to signing direct conventions approved by the Patronal Union. The other structures are obliged to go through negotiations, often difficult for the accomplishment of their training activities. Regarding the teachers improving on-the-job training in enterprises, there is practically no cooperation. In this regard each party evokes the problem of salary of educators. Some identify the problem as financial charges, others as a pedagogic problem.

We see that if the desire to orientate the technical and professional training towards the evolution of the world of industrial, commercial and agricultural production animates the different partners, the nature of their collaboration however, depends mostly on their stakes in the game, which is often contradictory. This situation reflects on the effective implementation of reports, even when sponsored. The official procedure for consultation is a simple moral obligation.

It is noted that whenever it is a question of establishing mutual relations between partners of technical and vocational education that reflect the socio-economic reality in Côte d'Ivoire, difficulties arise relating to the practices in force. These difficulties concern the behavior.

### *Level of Pedagogic Conduct*

As we said earlier, all technical education structures preparing for employment or access to higher technical education in Côte d'Ivoire adopt two forms of study during the school year, the classroom and the workshop. But apart from teachers and civil servants, how many professionals are effectively involved in the pedagogic process ? In other words, is there a permanent flow of exchange between the enterprise professionals and those in the training institutions in determining the pedagogic choices of the schools ? The answer given by our interlocutors is relative: "there is no provision for this in the texts; but with the temporary teaching system, we more or less try to organize these exchanges. From time to time, seminars are scheduled. In any case, it is impossible for us to recruit full time professionals, not even on a part time basis.

Thus, the permanent flow between the training structures and the professional world encounters difficulties in the pedagogic exchange, even if efforts are made here and there regarding moral obligations.

The difficulties are larger when it comes to the participation of educators in the activities of the professional world for their further training. But the experience of IPNETP, is to work to be given careful consideration, in fact, this institution operates directly in the enterprises as a business consultancy firm in order to implement projects that are useful for everyone.

### *Conduct of Practical Training*

The periods of practice, represent very important stages in training skilled working technicians and engineers. This is the time to be directly related to the professional world. However, the training practice can be very disappointing if badly conducted. This is often the case in the Côte d'Ivoire. The difficulties arise at three levels:

*The negotiation:* in general, trainers responsible for training-enterprise relations negotiate the practical training for the students, and set up tacit conventions with enterprises. These conventions are not written like partnership contracts binding the parties involved. They do not necessarily have to be scrupulously respected. The enterprises react with a kind of autonomy and with self interest accordingly. They have only moral obligations toward the training institutions. However, it is the same thing every year with negotiations and renegotiations. Although practical training for students is compulsory, negotiations have become difficult, due to the fact that the number of students is growing and the welcoming possibilities of enterprises have diminished.

*Development of practical training:* once the agreement is obtained and the nature, duration and objectives are determined, it is convenient to get the training organized. There are enterprises where the size, administration and personnel really help; and others which do not even have the means to operate at a higher supervisory level. Therefore, one should sort out these things in order to avoid difficulties in following up. In addition, there is the problem of funding the practical training, especially when establishing a prototype. There again, it is necessary to negotiate: there is no text related to this situation. The persons responsible for training-enterprise relations often count on the cooperation of business connections and friends.

*For a pedagogy of cooperation:* Let us recall that the technical and vocational education schools are created from the will of Côte d'Ivoire to set up schools that can provide training based on professional needs. The idea that these schools are seen

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well by employers, and because these employers have identified the relationship between a job position and the correspondent qualification which is acquired through a well adapted training. The maladjustment of technical and vocational education to the "economic needs" is real in the Côte d'Ivoire, especially when we climb up the professional hierarchy. It is almost impossible, nowadays to associate with certain professions of technicians or engineers, training which is proper to them, and which would correspond to well defined professional qualification. One of the "phase outs" of the training system which representatives of interest of patronage usually worry about is at this level. Is it possible to ask a training school, though technical and vocational, to provide, even for the simplest job, training that is closely specialized ? B. SCHWARTE (7) answers no, arguing that it is the responsibility of the enterprises to complete up the training (follow-up continuous training, he said)[5]. Based on B. SCHWARTE's idea, our contribution in the search for ways and means to an efficient cooperation between technical and vocational training institutions and the enterprises operates as follows:

### *Division of the Training*

This concerns the conception of the technical and vocational education. Until recently, the objective of the technical and vocational training schools was to train within the school, setting skilled workmen, technicians and engineers needed for the development of industrial, commercial, craft and agricultural production. The functioning of these structures was based on laws which are proper to them. That is why, when it was suggested to establish an eventual influence of the professional world on the technological training process in Côte d'Ivoire, one rapidly comes across difficulties which have their main origin in the very conception of technical and vocational training.

The government solicits through articles [6] under the laws governing the creation of the training structures, the participation of enterprises in the implementation stating clearly the prerogatives that condition or are related to this participation. That is why, in a situation of economic crisis, the employers take the opportunity to accuse the schools of "training mere professional misfits".

In defence of this disconcerting attitude, we say it is time for the Government to involve the enterprises, especially the middle and larger ones, more in initial technical and vocational training activities. The tacit conventions are not advantageous for training structures, so other ways are suggested. As for us, we think that this initial technical and vocational training should be finished within the enterprise in order to associate the employers fully with the training.

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[5] B. SCHWARTE, an other school, Paris, Flammarion, 1977.

[6] Ref. The texts of creation of ONFP, INFTP, INSET, etc.

To finish the initial training in enterprise, is to anticipate the cooperation in a legal setting which will determine the frame work. For example one can think of :

- long term training : one full year in enterprise (the last year of studies);
- an alternate training over a year (the last year of studies).

Through this, other difficulties mentioned above, relating to training programs and contents, arrangements for practical training and the exchanges between the professionals and the trainers, etc. can find a solution. The second advantage inherent to such a conception of the initial technical and vocational training lies in its operational nature: as relationships become operational, there is nothing to worry about. Consequently, collaboration becomes permanent and will facilitate the insertion of young graduates into the professional world.

However, once these agreements are set and approved by all partners, the government of Côte d'Ivoire should revise the texts of creation of OMOCI (Côte d'Ivoire Office of Manpower) which accord the exclusivity of placing the graduates by OMOCI give rise to attitudes on the part of the heads of schools;

- either complete impartiality for placing graduates;
- or attempt to place directly, in spite of everything, some of their products. This attitude give rise to sharp reactions on the part of OMOCI. We think that this situation should be revised, as it is important for a head of a training school to know what has become of the students trained in his school. How are they integrated in the selected job ?

It is for him, the best and single way to be aware of the real value of his education and to know almost every year the relative important need in each specialty.

*The Pedagogy of Partnerships*

By lack of the government will to review the conception of its training policy, other formulas should be anticipated which associate all actors capable of promoting the interactions, the exchanges, even substitutions between the organizations. These are jealously centered on their proper production. The knowledge and practice for the training institutions, and the product for the enterprises.

These formula will help reduce the mask and short cuts in the collaboration by:

- setting up conditions for an innovative training on industrial, commercial, craft and agricultural levels as well as the pedagogic level;
- the construction of long lasting systems, based on systematic exchange of knowledge with the constant aim to improve and finalize them. We suggest two formulae: an interdisciplinary partnership of technical and vocational training institutes with

referred enterprises. Both have a complementary relationship. This is what justifies our concept of pedagogy of partnership.

### *Interdisciplinarity*

It consists of a "horizontal" exchange of training objectives oriented towards innovation and the implementation of methods aiming at the integration of educations. For example, to teach a new technology in theory and try at the same time to create a demonstration model. The objective here is to set up an internal organization which will favor the harmonious development of these objectives.

This approach, within a same pedagogy group, meets the unavoidable strategic preoccupations of the enterprise, whose vocation is to product objects, services and the "know-how" characterized by their homogeneity and potentials.[7]. On the trainers side, the objective is to know more about the industrial, commercial, craft and agricultural processes in which the knowledge that they produce and transmit are incorporated, as for enterprises, the objective should be to know more about the means of direct access to this knowledge, especially the means to evaluate the industrial and commercial interest.

### *Partnership of Training Institutions with Enterprises*

It is a question to establish solid contracts, insisting on much caution on the pedagogic priorities. Existing consultative committees could be called upon to draft the contracts. The training structures will present the innovative ideas to the referred enterprises and vice versa. In any case, a pedagogic group will be constituted and will be responsible for developing these ideas. This logic calls for ample comments regarding its application in the setting of partnership because "at the point of joining of these organizations which are so different, unavoidable difficulties will arise, mostly related to the impossibility, sometimes evident, to conciliate the pedagogic objectives with the industrial, commercial, etc. (for planning reasons).[8] However, if well conceived, this logic of partnership presents enormous advantages and could at the same time contribute to solving the problems related to the practical training of students, the further training of trainers and the equilibrium between training-employment.

## CONCLUSION

When they retained the subjective "cooperation between the training institutions and the industrial, commercial and agricultural enterprise" the senior staff of UNESCO-BREDA got it right. For, we summarize through this study that there is no evident cooperation in

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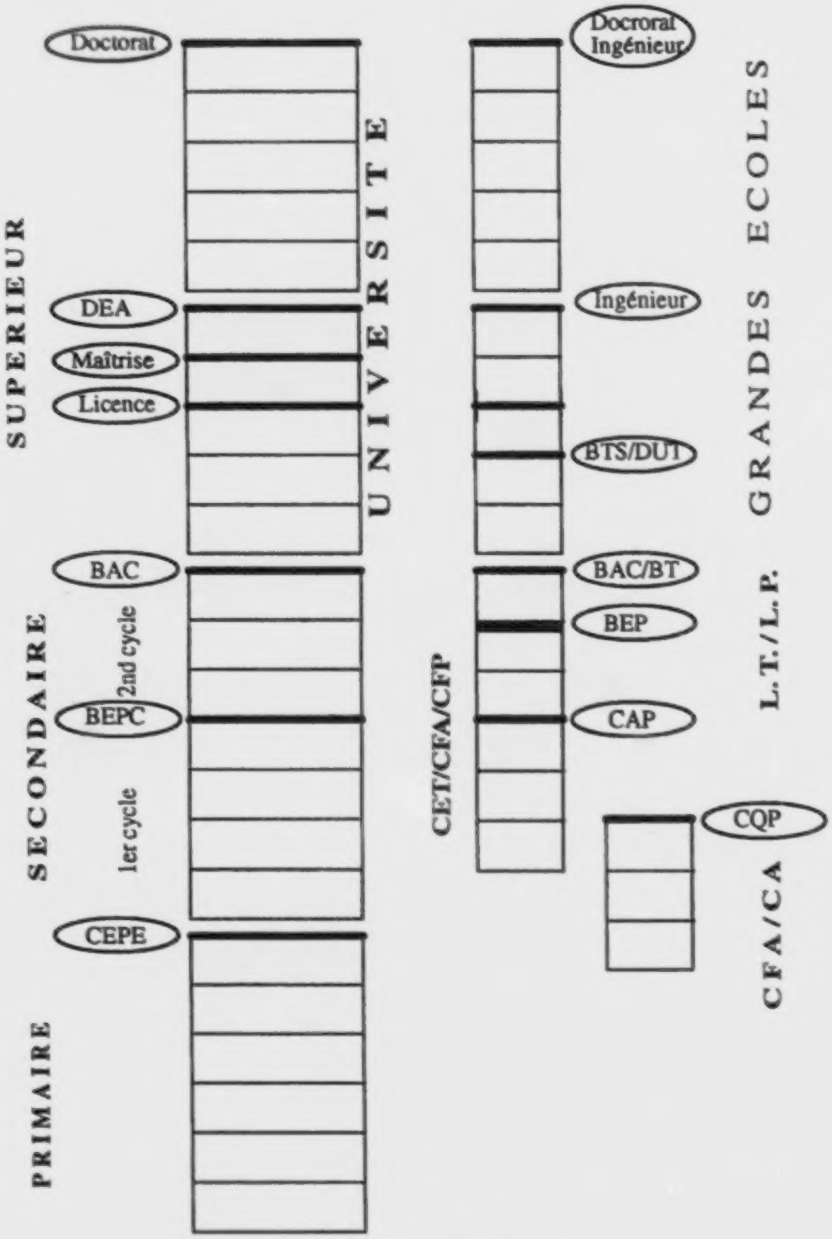
[7] Gino GRAMACIA, the pedagogy of partnership in the school and vocational orientation, June 1990/Vol.19/N°2, p.105

[8] Gino GRAMACIA, ibid

Côte d'Ivoire between the different parties as they are facing serious problems. This lack of effective cooperation is partly the cause of maladjustment between the technical and vocational training provided and the needs of the industrial, commercial and agricultural world.

When looking at the pedagogic process, we realized that the difficulties inherent in this cooperation are numerous. So our suggestions are made in view of researching ways and means of adjusting, the technical and vocational education to the needs of the enterprises. We live presently in a period of economic uncertainly. However, teachers are unanimous in thinking that good cooperation between the technical and vocational training structures and the industrial, commercial and agriculture enterprises ascertains good integration of young graduates in the professional world. The employment oriented training should be taken as complementary by training institutions and the professions themselves. The vocational training of youths can be provided efficiently by only two structures. So, to reduce the gap between technical and vocational training offered by institutes and the realities of employment, it is important that representation of professionals at all training levels be reinforced in order to bring improvements linked to the evolution of techniques. Their mission should be pedagogic improvements and management of the schools. In order to do so, we thought of setting up a system of partnership among the training structure and enterprises, well orchestrated by the government. After all, they all fight for the same cause: more dynamic training schools for a more efficient professional world.

## SYSTEME EDUCATIF EN COTE D'IVOIRE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# CHAPTER 11

# RELATIONSHIP BETWEEN TECHNICAL AND VOCATIONAL EDUCATION AND ENTERPRISES IN SENEGAL

*Oumar SOCK*[*]

## SOCIO-ECONOMIC CONTEXT

### *The Characteristics of the Economy*

After a period of modest but regular growth (3.3% from 1959-1966) the economic evolution of Senegal was marked by a series of successive crisis which strongly disturbed the growth and the financial equilibrium of the country.

The withdrawal of France's and EEC's guarantee over the price of groundnuts (1966-1968), the years of serious uninterupted dryness from (1969-1973) as well as the bad agricultural campaigns of 1977/78, and 1979/80 are various factors which have shaken the fragile economy, which was very sensitive to the overall risks. This jerky succession provoked a deep crisis in the groundnut economy (disturbing peasants) and weakness in the export capacity, thus resulting in strong imbalances in payments.

Globally, in terms of Gross Interior Product from 1966-1979 the Senegalese economy would have grown at a rate lower to that of population (3.7%) which meant a deterioration of the productive situation of the Country. However, the Senegalese economy did not remain stationary during this period : some sectors like (fishing and tourism) were dynamic while other sectors like crop and groundnut agriculture) experienced very poor or negative performance. The industrial sector which was highly handicaped by the insufficiency of groundnut supplies, progressed very modestly without remaining stationary.

As we can see, the volume of productivity at the national level is strictly dependent on the performances of the primary sector and on the agricultural sector in particular such as those operating in the area of fishing, shoe making and construction materials. The suppression of these companies generated important losses of jobs.

Nevertheless, the secondary sector registered a positive growth in 1990 which was mainly due to the inherent impact of the good agricultural campaign of 1989/90 which allowed rural populations to obtain substantial income, especially in the sale of groundnuts. The production of services through commercial activities, roads, railways, sea and air transportation occupied an important place. Tourism remained a negligible vector in the Senegalese production activity. This could be explained by the situation of the country and by its history added to political will for the development of the service sector.

In fact, this sector constituted the major source of employment for the great majority of the population.

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The primary sector remained therefore the main supplier of raw materials of the secondary sector in the area of transformation of products used for agriculture animal husbandry and fishing.

In addition to transformation of these products, the secondary sector incorporated important petroleum products refining of energy, and phospate production (the phosphate exportation income was estimated at 10% totally).

The secondary sector of the Gross Interior Product stabilized at about 18% from 1987, the year which marked the begining of reforms aiming at establishing a bigger liberalization of economic activity by suppression of quantitative import activities and reduction or suppression of government subsidies to enterprises.

### *Social Impact of the Adjustment*

Based on the degradation of the economic environment and public finance the government of Senegal was forced to take corrective measures by adopting, in 1979, an economic and financial recovery plan which was financially supported by the International Monetory Fund (IMF), the World Bank, and the United States of America.

Thus beginning in the year 1980, new measures were taken :

- At the fiscal level (increase of custom duties, plus a deduction of the Value Added Tax from the service concerned with debts).
- At the budgetery level, (limit on expenses).
- At the financial level (increase of interest rates of bank deposits, and limits on bank loans, etc.).
- At the economic level (restrictions on imports by limitating controls, subsidising of exports, reboosting private investments.

The first credit and loans agreement signed with IMF and the World Bank were fully implimented. They were suspended and cancelled in 1981 (IMF) and 1983 (BIRD) respectively. The suspension of these first agreements were followed by others within the framework of a short and long term adjustment plan for the period 1985/1992.

Two sectorial components were part of a new adjustment programme: the New Agricultural Policy (NPA) and the New Industrial Policy (NPI).

Regarding the adjustment programme of the industrial sector (NPI), the following were the essentials :

- reduction of protection of tariffs
- reduction of protection of non import tariffs
- increasing requests for export
- reduction of fiscal weight.

Now, the impacts of these adjustment programs were seen and the restrictions were translated into the closing down of enterprises and loss of employment opportunities.

Government authorities were increasingly thinking of putting special emphasis on the social dimension of the adjustment. This explained the creation of a structure by the government which dealt with the reabsorption of marginalized groups and the promotion of projects favouring salaried and non salaried employment, through the Agency for "Insertion, Reinsertion", and Employment (DIRE) and an agency for the execution of works of public interest (AGETIP).

### *The Boosting Perspectives*

The target objectives of short and long term adjustment plan (PAMLT) were not fully achieved because of internal and external constraints during the period of implementation. The achieved results remain fragile because of changes which could influence the situation both at the national (drought) and international level (scarcity of resources, adjustments in the rate of income from the raw materials and financial markets).

To avoid an equilibrum without growth, it was important to consolidate in a short term financial stability and in the mid term, promote a dynamic economy with the restoration of an institutional environment helpful to the development of private initiatives through private enterprises and private industries.

The new economic program was even conceived such as to give more initiatives to the internal actors in elaboration of policies, so as to be less dependent on external funding for implementation. The measures taken would therefore contribute to the reduction of government charges as well as raise the economy.

Definitively, the role of the private sector was reinforced in order to improve the investment rate whose actual level was not compatible with long term growth. Moreover, the scarcity of external resources required the restoration of budget savings and the improvment of an environment favourable to the economic activity in order to accelerate the growth. The long term strategic directions as outlined in the 8th economic and social development plan remained more than up to date :

- to ensure an increased long lasting total production ;
- control the urban growth and secure rural economy ;
- to adapt the educational system, reinforce aptitudes to development, broaden social communication.

The proceeding strategies could be summarised as follows :

- self-sufficiency in food production based on an integrated agriculture (pastoral agriculture) on the one hand and better interdependent agriculture/industry on the other hand ;
- the promotion of the private sector whose role was to be reinforced in order to increase investment rate ;

- the implimentation of a fiscal policy which did not only permit the improvement of fiscal incomes by the enlargement of tax basis but also took into account the contributing faculties of the population ;
- the adaptation of school to social economic realities- in order to meet the requirements of the labour market.

## PLACE AND ROLE OF TECHNICAL AND VOCATIONAL EDUCATION

### *Technical and Vocational Education, as a Socio-economic Development Factor*

Education in general, technical education and professional training in particular were always considered by the government authorities as priority objectives in the implementation of socio economic development policies. In fact, the allocation of almost a third of the government budget to education and training testified the will of the authorities to promote a real policy in the field of human resources. All the same, the technical and vocational training occupied an important place in the government's will to boost the economy. It was perceived as the basic element in modernizing the social and economic sectors.

Nothing could be achieved permanently in the area of modernizing production systems except for a real effort of adapting qualifications to the economic and social requirements, and a constant invigoration of all training programs with new knowledge drawn from science and technology.

That is why the government experimented and implemented a number of reforms in the educational system over the last twenty years, these were :

- 1971 reform with the first orientation law ;
- the innovations of the 1980s ;
- the reform recommended by CNREF and promulgated by the 1991 orientation law.

### *Institutional Framework*

#### *The 1971 Orientation Law*

The National Education Orientation Law n° 71-36 of 3rd June 1971 constituted the first law on orientation of the National Education and Training in Senegal.

It determined at the same time :

- the goals to assign to technical education and vocational training ;
- the target groups concerned with this training.

According to this law, the national education aimed at training free men and women, capable of creating the conditions for their self-sufficiency at all levels, to contribute to the development of Science and Technology and to bring effective solutions to national development problems. The education was to be permanent to give all citizens the possibility of being informed, being trained in all sectors of active life for an improvement of knowledge in view of social promotion.

This national education opted for massive education and training of senior qualified personnel and producers and was promoted by a new law oriented toward :

- youths at schools and universities, aiming to provide them with a certain level of theoretical and practical knowledge or technical and vocational aptitude;
- adolescents and adults already exercising vocational activities after more or less long studies in order to consolidate the knowledge, perfecting vocational qualifications and increasing the production capacity of the country.

### *1980s Innovations*

These innovations were marked by :

- creating the National Office for Professional Training ;
- reinforcing the chain of technical education colleges (Lycée technique Ahmadou Bamba of Diourbel and Ablaye Niasse of Kaolack ;
- setting up a system of employer financial contribution to the initial and continuous training of manpower ;
- defining new sectors in technical education and professional training.

### *1991 Orientation Law*

The recommendations of the National Commission of the Reform of education and training ended up with the adoption of the National Education orientation law of 16 february, 1991. This law integrated, among others, two major innovations aiming to systematize the basic permanent education and better orient technical and professional training. Therefore, it was recommended that : "the national and permanent education be at the service of the Senegalese people ; it aims at a complete and definite eradication of illiteracy as well as the professional improvement and social promotion of all citizens for a better improvement of the living and employment conditions and the elevation of labour and productivity".

Let us recall that this new law took into account right from the elementary level, (fundamental cycle) certain activities whose objective was to revalue/reassess manual labour at higher levels and initiate the child to new techniques.

### ***Structure of General Education***

The General Education is composed of 4 lelvels:

#### *The Pre-School Educatioon*

It prepares children aged 3 to 5 to school life. In 1990/91 ; the pre-school enrolled 17,042 pupils distributed in 161 schools.

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### The Elementary Education

The primary school system enrolled 708.299 pupils in 2 458 schools in 1990/91. The increase of the numbers at this level during the past years was due to the increase of classes. In 1990/91, 148.702 pupils, 23.1% of the public sizes had been trained in the classrooms where this Technical and Vocatinal Education had been introduced.

However, important efforts need to be made in order to reduce the disparities existing between the urban and rural zones.

### The Intermediate Education

Twenty-seven new schools were created since1983. The reinforcement of the network contributed to consistent increase in school enrollment which totals 132,348 pupils in 1995. Most of the newly created schools are set up outside the main districts of regions or department, thus showing the will of the public authorities to decentralize the educational level down to rural areas.

### The Secondary Education

The creation of new colleges and the opening of 1st year of advanced level in certain colleges indicated a growing demand, contributed to the expansion of the school sector which was composed of 59 schools including 31 public colleges. These latter schools enroled 36,642 students in 1990/91. Apart from these different levels of education, there is of course Higher education which is composed of tertiary level training institutes and two universities.

Students registered in 1990/91 at the Cheikh Anta Diop University of Dakar and its annexed tertiary schools were 17,180. This population should stabilize in order to create the conditions for quality education. Therefore, particular dispositions needed be taken to regulate the entrance flow. The University of Saint-Louis, opened in 1990/91 provided that option. Only 595 students were thus admitted there in 1990/91.

### Principal Forms of Relationship between the Educational Systems

The study of the different education levels indicates in a very precise way, all types of relationships that exist between the technical and professional education system and the educational system as a whole.

Therefore, if we consider the success flow and the outputs of the educational system, the following situations should be noted :

As the practical intermediate education has been discontinued, only the horticulture initiation centers recruit on the basis of CEPE. There are 6 altogether. For example, we can quote the National Center for Professional, Industrial and Commercial Studies (CNCPIC) which organizes evening classes for workers. Some of these workers only hold the CEPE. These trainings lead to the CAP.

Students admitted into the National Center for Professional Qualification (CNQP) are recruited from the third year of intermediate education (classe de 4e). They prepare for the Professional Qualification (CQP).

At present, CNQP is the sole structure that offers training from CAP level to BEP level. The generalization of this formula could constitute an alternative for those who do not finish the intermediate cycle.

There are four steps between the intermediate and secondary education. Three among those steps constitute final diplomas such as BEP (2 year training) BT or the diploma for rural development Technical agent (3 year training) and the End of Studies Certificate delivered after a 4 year training by the Regional Colleges of Education. The fourth step is considered as a section, for example the technical secondary, which leads to the technical advanced level diploma and later to higher studies. However, it is important to note that the step between the technical secondary education and the higher educatioin is particularly selective. On one hand we know there is a relative reduction in the holders of the advance level diploma in scientific and technical sections, while on the other hand, the entrance exams for higher training constitute an obstacle.

For example, in 1988/89, only 20 out of 73 holders of advanced level diplomas of serie F (all series F1, F2, F6 and F7) were admitted into the higher training schools : eleven (11) at ENSETP, six (6) at the National Maritime Training School and three (3) at ENSUT.

The existence of important bottlenecks at the level of the three principal stages of the system constitute a serious problem in relation to the dynamique and the performance of technical and professional education.

In fact, technical and professional education remained entirely dependant upon a mechanism with hardly flexible articulations because of a lack of sufficient steps. Therefore, it plays very little role in the determination of equilibrium and the regulation of the flow between the different levels, and the principal sections of the educational system on one hand and in the development of the continious training on the other.

## RELATIONSHIP BETWEEN THE TECHNICAL AND VOCATIONAL EDUCATION AND GENERAL EDUCATION SYSTEMS

### *Structure of Technical and Vocational Education*

In 1990/91 the Government Technical education sector had 5461 students in eleven schools. These schools were made up of six (6) industrial and/or commerical technical education colleges and five (5) secondary education colleges (series B) which dealt with (sciences and economics).

The six colleges alone had 4420 students that was 81% of the total size and 137 classes out of the 159 which existed in the public sector.

In these schools apart from the (series B) we had the following series:

- E : Technology and mathematics
- F1 : Mechanic works or General mechanics
- F2 : Electronical engineering
- F6 : Biochemistry
- F7 : Biology
- G2 : Quantitative management techniques.

Up to 1980, we could count among those series :

- F3 : Automobile mechanic
- F4 : Boiler works and industrial piping
- F5 : Metalic construction.

These *series* have been cancelled because the students who received these trainings had difficulties at the Higher educational level. Their achievement in mathematics was relatively low. These series were then replaced by the Industrial Technical Diploma which was more competitive on the practical level. At the same time, it was decided to reinforce the hours devoted to Mathematics education in the same series F, especially those which had been maintaineed.

This reform was progessively introduced, first in the final year of secondary schools *seconde* (1991/1993).

The technical education was poorly developped at the private sector level. Some 8 schools had series B and G which had 974 students (15% of total size) in 28 classrooms.

Contrary to private technical education, there were sometimes at the public sector level some schools which provided professional training. Thus, in certain technical colleges, the following sections could be found :

- Industrial technical diploma (automobile mechanic, boiler works, industrial piping, metalic constructioin);
- Professional studies diploma.

In general, the recruitment in the technical colleges was done in two ways :

- *by orientation* for the students with an Intermediate Studies Diploma (BFEM) who obtained an average mark of 10 over 20.
- *by a compulsory entrance exam* for the BEP-Secretariat and for the Industrial Technical Diploma (BFEM).

### *Vocational Training*

The vocational training schools were widely distributed nationally. Each region has at least one training center. However, the structure charged with the vocational training, revealed important disparities. The Dakar region had more than 40% of the schools with about 75% of the total enrollment. It was followed by Thiès with about 17% and St-Louis with 15%.

The regions of Louga, Fatick, Kolda and Tambacounda on the contrary has less than 10% of the existing structures. The public vocational training institutions constituted the essence of the system and represented 78% of the network. Infact, the private sector managed only 17% of the schools and the para-public sector managed 5%.

Concerning the enrollment, important disparities between boys and girls could be noted. The boys constituted 66% of students registered in the vocational training schools.

These sizes were distributed according of the economic activity sectors.

*Primary Sector*

- The initiation centers for horticulture. These schools recruited at the First School leaving Certificate level. In 1988, they had 87 students in an infrastructure which could contain 170.
- The regional vocational training centers newly created are 5 together.
- The schools for the rural development technical agents in Senegal are 4 (agriculture, forestry, animal husbandry, fishing).
- The horticulture vocational training center (CFPH of Cambérène).

Parallel to these public training structures, there were private institutions composed of diocesian centers (CFA of Nianing, Ndiebel Center, Nguengne, Ngandiaol), Non-Governmental Organizations (OFADEC, AJAC) and village development associations (ASECAW, FPOB).

The number of structures that offered training to the primary sector was reduced if one takes into account the fact that agriculture occupied 80% of production with only 12% of the training schools.

*The Secondary Industries*

In this sector, the system was characterized by a duality of conventional training in technical and vocational training schools on one hand and a non-conventional training in craft micro-enterprises of production and service on the other hand.

The principal vocational sections in the formal system were as follows :

- Electricity,
- General mechanics,
- Civil and construction engineering,
- Automobile and engine mechanics,
- Sheet-iron works and welding,
- Metalic construction,
- Wood works,
- Industrial and Home refrigerating,
- Sewing.

Several reforms were implemented first in 1971 then 1978 and finally 1980 in order to better adapt the program contents to the requirements of the productive sector.

These measures contained in the 1971 and 1972 reforms at the intermediate level were oriented toward a type of technical-vocational and full time education after the "0" level which was then preparing for a technical Advance level or a Technical Diploma (BT) or Professional Studies Diploma (BEP) or the Senior Technical Diploma (BTS). Specific programs for refresher courses were also implemented for the benefit of working staffs and ensured the preparation for the Professional Aptitude Certificate (CAP) and for a Professional Certificate (BP). The training was organized in the form of evening classes, teaching practices, or particular modules aiming at improving performances and the social position of the beneficiaries.

Apart from these institutions, there were other types of structures that were set up in the peripheral zones essentially, dealing with the training of populations like the rural crafts perfecting centers (CPAR) and women promotion Centers (CRETEF-CETF).

Also, there were training structures in some industrial units.

*The Tertiary Industries*

The importance of this sector which was called *social* by excellence, led the public authorities to set up a relatively dense network.

The training provided in these schools concerned a variety of areas such as :

- Education and training,
- Health,
- Security,
- Customs,
- Administration,
- Arts,
- Trade and management,
- Hotel trade and tourism.

The training was provided by public schools. But private promoters were more and more interested in this sector especially in the following areas : secretariat, management, administration, transport.

In 1988, 68 schools in the tertiary sector had been recorded. Among these structures, were 57 schools specialized in the training of execution agents.

*Higher Level*

The main higher technical and vocational education schools were the Higher National University schools, i.e. the Higher National University, school of Technology

(ENSUT), and the Polytechnique school of Thiès (ENSETP). It should be noted that the Faculty of Science and Technology had professional training projects inside its structure.

*The Higher National University School of Technology*

This school was first created in 1964 under the name of Polytechnique Institute, but later became the University of Technology (IUT) in 1967.

The n° 73-17 law of 03 april 1973 set up IUT as a public school of Dakar University, with a legal status and a financial autonomy.

In 1974, IUT became the Higher University School of Technology (ENSUT).

ENSUT is administered by a School Council composed of government representatives, employers, school staff and students.

*Goals*

The ENSUT's objectives are :

- the initial training of students for the University Diploma of Technology (DUT at the advanced level + 2 years) ;
- the complementary training (DUT + 2 years) of students holding a DUT with or without working experience. The following diplomas are awarded :
  - . Technology Engineering (DIT) ;
  - . Higher Trade and Enterprise Management Studies (DESCAE) ;
  - . the in-service training of staff in the enterprises and the services of the private and public sector ;
  - . the technical assistance to enterprises and services ;
  - . the applied research activity and the training of Senegalese and African teachers.

*The Training Sections*

On the pedagogic point of view, the basic operational unit is the Department. The departments are grouped in two divisions :

* The Industrial Division composed of 4 departements :

- Chemical Engineering and Applied Biology
- Electrical Engineering
- Mechanical Engineering
- Civil Engineering.

* The Tertiary Divison composed of 2 deparments :

- Tertiary Department
- Computer Work Department.

The recruitment (specific tests for Senegalese, a file for foreigners) concerns those who hold the Advanced level diploma (Baccalaureat) whose option corresponds to the selected deparment :

- Series C-D-B-E-F for the deparments in the Industrial division
- Series C-D-B-G2 for the tertiary deparment
- Series C-D-E for the computer deparment.

It should be noted that ENSUT is basically characterized by the flexibility to open or close traditional sections according to job opportunities in the professional sector, as well as to define the contents of training programs. This constitutes a major chance to adapt to the socio-economic context of Senegal and the region.

*The Higher School of Technical and Vocational Education (ENSEPT)*

It was created in 1979 by decree n° 79-1002 of 24 october 1979 to replace the old Higher Male Technical Education School of Dakar.

The law n° 89-03 of January , 1987 set the Higher Technical and Professional Education School (ENSETP) in a public school with a legal entity and a financial autonomy annexed to the Cheikh Anta Diop University of Dakar. With the exception of the Order in Council adopted by the University Assembly, l'ENSETP functions on the same basis as the other national schools annexed to the University. Government representative, employers, school staff and students are members of ENSETP Administration Council.

*Goals*

The main objectives of ENSETP are :

- The training of teachers ;
- Responsible for teaching technical theorical and practical subjects in the technical and vocational schools (colleges, high schools, professional training centers, etc.) ;
- Responsible for assuring school and professional orientation of teachers and of schools (inspection specialist) ;
- Organizing refresher courses and follow-up trainings for teachers of the public and private sectors ;
- The pedagogic assistance of researching and disseminating means, methods and pedagogic support, aiming at improving the quality of the training.

At the end of the training, ENSETP awards the following diplomas :

- CAEMTP : Certficate of Aptitude in Technical Practical Intermediate Education (Advance level + 4 years) for intermediate education teachers ;
- CAESTP : Certificate of Aptitude in Technical and Professional Secondary Education (BAC + 4 years) for the secondary school teachers ;

- CAFPC : Certificate of Aptitude in the functioins of Guidance and Counselling (A/L + 5 years) for the personnel responsible for school and professioinal orientation.

### *Training Sections - Recruitment*

From the pedagogic point of view, ENSETP has five departments :

- Home Economics
- Guidance Counselling
- Sciences and Economic Techniques
- Administrative and Secretarial Techniques
- Sciences and Industrial Techniques.

The recruitment (specific tests for Senegalese, school files for foreigners) is carried out at various levels among those who hold diplomas in agreement with the entry profile of the selected sections :

- with advanced level education in home economics (serie D) science and industrial techniques (serie E and F) the students are entitled to entrance into the 1st year of university ;
- with DUT or BTS Diplomas, students are admitted into 3rd year and into 4th year for students with University bachelor's degree especially for guidance counsellors, Science and economic techniques.
- students with master's degree or A3 engineer diploma are admitted into 5th year.

ENSETP, the unique school that offers training of trainers courses in technical and professional education in Senegal has the opportunity to train all the trainers of this sector, in-all-fields.

Therefore, opening and closing training sections takes into account the needs expressed by the national directorates of the ministrerial departments of National Education, Labor and Professional training. These directorates directly manage the structures of professional and technical education. To meet these training needs, ENSETP collaborates with all the national schools (with ENSUT for example) and foreign schools capable of helping with the training process).

### *Polytechnic School of Thies*

The Polytechnique of Thies (EPT) was created by the law n° 73-493 of May 25, 1973 with the financial AID of Canadian Cooperation and placed under the military administration.

In 1992, EPT was annexed, like most of the national schools, to the University (law n° 92-38 of July 7,1992). Its implementation order foresees the setting up of an Administration Council in which the government, the employers, school staff and students will be represented.

The objectives of EPT are:

- to train design engineers (A/L + 5 years) ;
- to provide a doctorate training in engineering sciences ;
- to carry out research in all engineering fields in order to promote development activities.

*Training Sections ; Recruitment*

EPT has three departments :

- the Department of Compulsory Subjects ;
- the Department of Civil Engineering;
- the Department Electro-Mechanics Engineering.

Students admitted into 1st year are recruited among holders of the advanced level diploma in series C and E (admission is given after a specific test for Senegalese and file for foreigners).

Students with DUT or DUES diplomas can also be admitted after exams into 3rd year to prepare for a specialization in Civil Engineering or Electro-mechanics engineering.

EPT anticipates the creation of other deparments based on the needs related to the socio-economic context of the country.

## RELATIONSHIP BETWEEN TECHNICAL AND VOCATIONAL EDUCATION AND INDUSTRIAL ENTERPRISES

### *Study of the Regulating Documents*

There are official texts which define the relationship between the technical and professional education, and the industrial units, throughout the secondary and higher training cycle. The following texts can be cited as examples :

- the National State/Employers Convention for the promotion of employment;
- the outline convention established between the National Professional Qualification Center and the Employers ;
- The organic documents relate to most of the higher education schools (ENSUT, ENSEPT and EPT).

Concerning learning by experience, four categories are outlined by the texts :

- Appenticeship instruction which concerns very little or none educated youths and of which the objective is to give or to complete the general and professional practical knowledge of the target groups;
- The qualification instruction awarding the youths a BFEM, advanced level diploma and intermediate diploma of higher education and, of which the objective is to give the interested candidates the opportunity to acquire a profesional qualification recognized on the labour market;

- Re-training programmes for the University leavers holding a final general diploma (Economics, Law, Arts, Human Sciences specialists, etc.) and who have difficulty finding a job in their speciality.

Re-training should help them acquire, in the best possible conditions, the complementary theoretical and pratical training necessary to raise them to the professional level of relevant employment. This training is for holders of technical and professional diplomas.

The above mentioned documents also indicate :

- the nature of the contract binding the trainee and the employer;
- the role of the training master in the professional guidance of the pupil or student;
- the status of the trainee under instruction.

Apart from the instruction period, the pupils or the students undergoing the training can be associated, as needed, to some research activities initiated by the entreprises. Moreover, the texts anticipate the inclusion of professionals in the training process at the level of higher level educational institutions.

### *Analysis of the Current Situation : Intermediate and Secondary Levels*

#### *The National Centre for Professional Qualification (CNQP)*

CNQP's pedagogic option is in keping with the institution of a permanent link with the entreprise to define its training and refresher course activities.

Owing to its status as a Public School of administrative nature, with a legal entity and a tripartite Administration Council (Government-Employers-Employees), CNQP sets up training activities based on modular type training methods and techniques in order to meet the training needs of the users of manpower as regards the workmen, supervisory staff, and intermediate staff.

CNQP operates in the following fields :

- Initial training for youth from the school system
- The training is for 3 years
- the first year takes place completely in the Centre. During the 2nd and 3rd years, the training is distributed alternatively between the Centre and the entreprises in the form of industrial instruction courses of 7 weeks at CNQP and 21 weeks at the entreprise per year.
- This system helps familiarize the youth with the working conditions very early, and facilitates immediate adaptation at the end of the training.
- Refresher course for working agents.

CNQP organizes refresher courses during the year in collaboration with the employers. The qualification modules proposed by CNQP, which vary between 40 and 156 hours, are implemented during working hours on part-time schedules or continuously as requested, in order to avoid keeping a worker whom the entreprise cannot spare for too long.

The refresher courses can take place inside the entreprise. The number of participants is limited to 8 and 12 persons. A certificate of attendance is awarded at the end of the programme.

* In-Entreprise Training Counselling

The refresher activities also take place at CNQP following a programme clearly defined in collaboration with the training applicant (Entreprise-Administration-Individual).

Moreover, CNQP also offers custom-made programmes of patronage and of training of instructors for the benefit of entreprises.

* Service Delivery

A pool of technicians, under the direction of CNQP trainers, offer service delivery in all fields of speciality concerned with the training at CNQP within the limits authorized by regulations in force. Private evening courses are also offered in order to socially promote salaried workers.

Created in 1983, CNQP progressively set up training based on the expressed needs of its professional partners. It works with more than 80 entreprises and contributes to the improvement of the quality of manpower.

### *The Technical High Schools*

Apart from the National Centre for Professional Qualification (CNQP), only a few, rather timid contacts exist between the training institutions and the world of work.

During the summer holidays, students and teachers, with the help of the administrative authorities, are instructed in some entreprises, especially those in favour of this link of cooperation. In fact, it is important to point out the difficulties encountered by Heads of Schools, to obtain agreement with companies in keeping with the pratical and complementary training of students. Only five positive responses have been obtained out of twenty letters addressed every year to entreprises by the Directorate of Technical Secondary Education during these past three years.

However, very close relations between some training institutions and entreprises can be noted. For example : Ahmadou Bamba Technical High School and SEIB; André Peytavin Technical High School and SAED; Maurice Delafosse Industrial Technical High School and Renault-Senegal ; Seydina Limamou Laye Technical High School and Les Moulins SENTENAC.

In most cases, it is the question of associating the students and the teachers in the fabrication of machine tools or spare parts which are not available on the local market.

* At the Higher Level

The nature of relations entertained by ENSEPT and ENSUT with some entreprises illustrates the type of relationships presently existing between higher education schools and the world of employement.

*ENSEPT*

Regarding this school, a few on-going collaborations during the last years can be noted as to the school-entreprise cooperation.

* Visits to entreprises and industrial training practices

In order to achieve these goals, ENSEPT collaborates with most public and private entreprises which welcome factory visits or practical on-the-job training of 6 to 8 weeks for students under instruction.

* Artificial limb supply to the handicapped

This project which was developped in collaboration with the ENSUT Department of Mechanics Engineering, has helped supply artificial limbs to handicapped victims of poliomyelitis, upon request by the National Orthopeadic Supply Centre of Dakar (CNAO).

The study and the fabrication of the equipment has been implemented by the students of 3rd and 4th year at ENSEPT, with funds granted by CNAO. With appropriate specifications which help then continue fabrication and production of orthopeadic apparatus at cheaper prices and with optimal quality.

It shouuld be also noted that there is an on-going study on the making of knee prosthesis which requires the use of special machines (crusher, machine to inspect plastics under pressure).

* End of Study Projects

In the final year, students of ENSEPT develop projects that deal with the products survey, the production of utility prototypes or teaching materials in the different instructional areas.

This process is welcomed by entreprises which accept to support the study material after they have discussed these with the teaching corps, and financially support the students in their preparation of their dissertation or thesis.

Significant results have been obtained in this area with two works that were very appreciated : wood turning machine and the honey extractor. The honey extractor conceived as a prototype, earned its designer the second prize from the President of the Repubic, for Technological Innovation in 1992. In 1993, the agro-industrial company NESTLE-Senegal supported two final year training students for the development of their thesis on subjects selected in collaboration with the company.

* Traffic Lights

A group of ENESPT and ENSUT teachers have been able to develop, at the request of the Urban Community of Dakar, a light control mechanism in compliance with specifications established,'in view to the rehabilitation of the equipment for the control of traffic lights in Dakar.

* Service Delivery

Important efforts are being made to satisfy the follow-up training needs and recycling of trainers or entreprise staff for supervision roles. ENSEPT intervenes in order to satisfy demands of:

- ONFP (National Professional Training Office) to provide teacher training for a dozen training technicians coming from the professional training centres of primary (Agriculture, Horticulture) secondary (Dakar-Marine, CNQP) and tertiary (Accountancy, Management) industries.
- PATI Project (Italian Technical Assistance Project) of the Ministry of Health and Social Welfare aiming at training higher technicians and engineers who will teach the hospital maintenance component of the project in the training centre. ENSEPT carries on its activities of follow-up training of trainers in the public and private sectors. The contacts that have been initiated will help refine its strategy in order to better satisfy the expressed needs. The Service Delivery will also help diversify the nature of ENSEPT interventions.

*ENSUT*

* *Collaboration with professionals*

Collaboration with professionals in the students training process on both the intra-mural and extra-mural level is more developped than anywhere else. In fact, the laws governing the functioning of this school anticipates that in addition to permanent teachers, persons belonging to the professional sector, selected on the basis of their competence and who teach part time as temporary teachers could be part of the teaching corps.

In 1991-1992, the part-time teachers represented 30% of the ENSUT teaching corps, providing 250 hours of teaching per week, that is to say 20% of the global volume of hours. Most of these outside temporary teachers come from entreprises and their participation in the training process is an important factor of professionalization of the training.

* On-the -job Training and Factory Visits

The entreprise professionals collaborate also in monitoring the on-the-job training of the final year students. A compulsory on-the-job training of one month minimum is scheduled at the end of DUT Cycle. The subject of study is suggested by the entreprise.

Also at the end of DIT Cycle, the student's end of study projects generally deal with subjects that are selected in collaboration with the entreprises. Professionals are designated as members of the jury of thesis defence.

Finally, many factory visits are organized every year by different departments. They give opportunities to accompanying students and teachers to discover, under the direction of senior staff of the entreprise, the realities of functioning of industrial units.

*EPT*

The Polytechnic School of Thies trains for five years, Northern American type of engineers, adapted to specificities of developping countries.

The pratical training component for EPT engineering students is completed with two practical courses of sensitization to concrete problems encountered by the industrial structures of the country.

The first practical training called *"stage ouvrier"* (open apprenticeship) takes place at the end of second year of studies. It helps the student while on industrial attachment to be aware of the industrial setting and the realities that will be faced in this future employment.

The second training called *"stage de maitrise"* is at the end of the fourth year. Its objective is to initiate the future engineer into the methods of managing an entreprise, and the exercise of primary responsabilities with authority.

These pratical training sessions of six weeks minimum are effected in a private entreprise or public sector. At the end, students draft, following a predetermined plan, a reprot which is submitted for the application of the training supervisor. This latter communicates their appreciation to the Students Directorate of the School.

* Dakar Technopole

It is important to note that the existence of the Dakar Technopole project should effectively boost the relationship between training institutions and research in technology that have been undertaken. This technopole to be set up on a 200 hectare site in the center of Dakar, Pikine, hinges on five complexes : Food and Agriculture, Environment, Energy, Telecommunications, Computer work, Communication-Animation.

Among the various objectives of this project are noted the exploitation of research findings, the intervention of new produts and production processes, the implication of the private sector in the funding and conduct of applied reasearch programmes, etc.:

## RECOMMENDATIONS FOR THE REINFORCEMENT OF THE SCHOOL-ENTREPRISE COOPERATION

The partnership between the technical and vocational training institutions and the industrial entreprises has become an imperative necessity considering the socio-economic changes of the country, the training needs of the labour market and progress of science and technology.

The technical and vocational education's main objective is to train readily operational agents. It is therefore important to study both School-Entreprise entities in order to reach an equilibrium between the training and the needs of users of qualified manpower.

The reinforcement can be operated as follows :

*The Initial Training*

Considerable efforts are being made in this field. The entreprises are involved in accepting pupils and students under training for short term industrial practical training as well as the organisation of study visits. It would even be better if participation of the professional milieu in the training process is emphasized by eliminating some organisational problems. Therefore, it is recommended to :

- Increase the duration of the industrial on-the-job training over all the training period;
- Thoroughly plan this practical training in order to generalize at the various levels of the technical and vocational education (intermediate, secondary and higher education);
- Make resource persons of entreprises participate effectively in the supervision and evaluation of students undergoing practical training.

  For example, the valorization of the in-entreprise participation in the training effort. In this way, it is their reponsibility :

  - to establish a permanent dialogue with the world of employment in order to be able to better define the contents of the practical training, the modalities of implementation and the entreprise input;
  - to receive flexible study programmes for timely introduction of the necessary innovations, or as needed, the revision of the contents of the programme;
  - not to orientate students exclusively towards salaried employment, but to define, in collaboration with professionals, training strategies capable of developing the spirit of initiative in order to create small production units;
  - to rely on the entreprise to provide practice for knowledge acquired in school;
  - to associate professionals with the different stages of the organization of the exams (subject proposals, participation in the subject selection committee, supervisory and exam paper evaluation).

*Sustained Training*

To increase the competence of its human resources and improve the quality of its products, the entreprise could satisfy its permanent training needs by means of practical training or seminars in collaboration with the technical and professional structures.

Advanced or refresher activities are already being implemented in most schools, by establishing and extending these activities to all levels of qualification, the entreprises will benefit more and maintain the equipment of the technical and vocational education institutions which are usually very expensive.

*Service Delivery*

The training structures could satisfy the demands of the entreprise by means of service delivery. This type of operation is known to permit on one hand benefit from the technical expertise of the technical and vocational education institutions and, on the other hand, to generate financial and material resources to schools which then have the opportunity to enhance the human resources and equipment.

There is presently a legal setting which favors this kind of participation of entreprises for the funding of studies or other advances in schools. We can quote among others :

i) at the intermediate and secondary levels : December 06, 1991 : decree n° 91-1355 authorizing professional training schools to generate and utilize their own resources;

ii) at the higher level : November 14, 1990 : Rectorate order n° 1017 on service delivery by Cheikh Anta Diop University of Dakar.

The entreprise should appeal to schools to overcome some difficulties, by combining their expertise with the potential offered by the training institutions more effectively. The latter should as well initiate contacts with entreprises in order to clearly explain their realities, needs and potentials.

* Intervening Structures

Beyond the initiatives of the training institutions and the involment of entreprises in the training process and funding of school operations, it is necessary that functional structures serve as a link between the professional milieu and the technical and vocational schools.

This structure will be responsible for determining the main orientation of the training policy by means of a pluralistic annual action plan and communication system, operational with all parties (Government, Entreprises and Schools).

Moreover, this structure should also help with :

- the analysis of professions corresponding with the realities and requirements of the salaried or non-salaried jobs;
- the establishment, on the basis of these analysis, of profiles and training programmes oriented towards the mastering of knowledge and pratice necessary for the accomplishment of the described functions, and to exercise the functions and responsibilities in various professions. This will help plan the employment needs;
- sensitizing the entreprises to the opportunities offered by the technical and vocational schools.

The coherent study of a close colaboration between the training institutions and the entreprises is a means to widen the opportunities offered by the training system and to make resources invested everywhere profitable.

## NUMBER OF STUDENTS ACCORDING TO THEIR SPECIALTY AND BY DEPARTMENTS AT ENSETP

| Department | SPECIALTY | NUMBER OF STUDENTS ACCORDING TO THE LEVEL OF TRAINING | | TOTAL |
|---|---|---|---|---|
| | | CAEMTP | CAFPC or CAESTP | |
| Sciences and Industrial Techniques | Compulsory Industrial Subjects | - | 26 | 26 |
| | Mechanical Construction | - | 8 | 8 |
| | Educational Manufacturing | - | 14 | 14 |
| | Educational Technology | - | - | 43 |
| Home Econom. | Home Economics | 53 | - | 53 |
| Guidance Counsellor | Guidance Counsellor | - | 9 | 9 |
| Eco. Sciences | Economic Sciences | - | 7 | 7 |
| Other | Horticultural Techniques | - | - | 7 |
| **Total N° of Students** | | 167 | | |

CAFPC: Certificate of Aptitude in Guidance and Counselling (A/L + 5 years)

CAESTP: Certificate of Aptitude in Technical and Vocational Education (A/L + 5 years)

CAEMTP: Certificate of Aptitude in Intermediary Technical Teaching Practice (A/L + 4 years)

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## NUMBER OF STUDENTS BY SERIES

*School Statistics Office*

| Nber | Schools | SERIE B | | | SERIE E | | | SERIE F | | | SERIE G | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total |
| 1 | LTC Delafosse | 350 | 213 | 563 | 0 | 0 | 0 | 0 | 0 | 0 | 308 | 285 | 591 | 658 | 496 | 1,15 4 |
| 2 | LIT Delafosse | 0 | 0 | 0 | 179 | 22 | 201 | 310 | 29 | 339 | 0 | 0 | 0 | 489 | 51 | 540 |
| 3 | S. Limamou Laye | 538 | 223 | 761 | 159 | 2 | 161 | 280 | 8 | 288 | 0 | 0 | 0 | 977 | 233 | 1,21 0 |
| 4 | LT Ahmadou Bamba | 0 | 0 | 0 | 118 | 7 | 125 | 88 | 4 | 92 | 0 | 0 | 0 | 206 | 11 | 217 |
| 5 | LT André Peytavin | 98 | 35 | 133 | 60 | 0 | 60 | 91 | 2 | 93 | 61 | 60 | 121 | 310 | 97 | 407 |
| 6 | Abdoulaye Niasse | 277 | 96 | 373 | 0 | 0 | 0 | 0 | 0 | 0 | 211 | 130 | 341 | 488 | 226 | 714 |
| 7 | Lamine Gueye | 317 | 217 | 534 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 317 | 217 | 534 |
| 8 | Mixte Delafosse | 295 | 195 | 490 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 295 | 195 | 490 |
| 9 | CEM Isaac Foster | 45 | 10 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 10 | 55 |
| 10 | CEM Martin Luther King | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 |
| 11 | Ahoune Sane | 91 | 19 | 110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 19 | 110 |
| TOTAL | | 2,01 1 | 1,03 8 | 3,049 | 516 | 31 | 547 | 769 | 43 | 812 | 580 | 473 | 1,05 3 | 3,87 6 | 1,58 5 | 5,46 1 |

# GOVERNMENT SECONDARY TECHNICAL SCHOOL

*School Statistics Office*

## NUMBER OF STUDENTS BY SERIES

| Nber | Schools | SERI E B | | | SERI E E | | | SERI E F | | | SERI E G | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total | Boys | Girls | Total |
| 1 | LTC Delafosse | 357 | 252 | 609 | 0 | 0 | 0 | 0 | 0 | 0 | 301 | 334 | 635 | 658 | 586 | 1,244 |
| 2 | LIT Delafosse | 0 | 0 | 0 | 210 | 17 | 227 | 351 | 37 | 388 | 0 | 0 | 0 | 561 | 54 | 615 |
| 3 | S. Limamou Laye | 537 | 254 | 791 | 133 | 2 | 135 | 243 | 6 | 249 | 0 | 0 | 0 | 913 | 262 | 1,175 |
| 4 | LT Ahmadou Bamba | 0 | 0 | 0 | 110 | 1 | 111 | 101 | 5 | 106 | 0 | 0 | 0 | 211 | 6 | 217 |
| 5 | LT André Peytavin | 87 | 40 | 127 | 77 | 2 | 79 | 160 | 8 | 168 | 78 | 64 | 142 | 402 | 114 | 516 |
| 6 | Abdoulaye Niasse | 367 | 114 | 481 | 0 | 0 | 0 | 0 | 0 | 0 | 293 | 166 | 459 | 660 | 280 | 940 |
| 7 | Lamine Gueye | 330 | 195 | 525 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 195 | 525 |
| 8 | Mixte Delafosse | 498 | 300 | 798 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 498 | 300 | 798 |
| 9 | CEM Isaac Foster | 52 | 16 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 16 | 68 |
| 10 | CEM Martin Luther King | 0 | 58 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 58 |
| 11 | Ahoune Sane | 115 | 29 | 144 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 29 | 144 |
| | TOTAL | 2,343 | 1,258 | 3,601 | 530 | 0 | 552 | 855 | 56 | 911 | 672 | 564 | 1,236 | 4,400 | 1,900 | 6,300 |

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## GOVERNMENT TECHNICAL SECONDARY SCHOOL

*School Statistics Office*

### NUMBER OF CLASSES

| Nber | Schools | NUMBER OF STUDENTS IN FINAL YEAR OF SECONDARY SCHOOL | | | | | NUMBER OF STUDENTS IN LOWER SIXTH FORM | | | | | NUMBER OF UPPER SIXTH STUDENTS | | | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | B | E | F | G | Tota l | B | E | F | G | Tota l | B | E | F | G | Total | |
| 1 | LTC Delafosse | 4 | 0 | 0 | 4 | 8 | 3 | 0 | 0 | 4 | 7 | 3 | 0 | 0 | 4 | 7 | 22 |
| 2 | LIT Delafosse | 0 | 3 | 6 | 0 | 9 | 0 | 3 | 8 | 0 | 11 | 0 | 2 | 8 | 0 | 10 | 30 |
| 3 | S. Limamou Laye | 5 | 2 | 4 | 0 | 11 | 5 | 2 | 5 | 0 | 12 | 4 | 2 | 3 | 0 | 9 | 32 |
| 4 | LT Ahmadou Bamba | 0 | 2 | 1 | 0 | 3 | 0 | 2 | 2 | 0 | 4 | 0 | 1 | 3 | 0 | 4 | 11 |
| 5 | LT André Peytavin | 1 | 1 | 4 | 1 | 7 | 1 | 1 | 4 | 2 | 8 | 1 | 1 | 2 | 1 | 5 | 20 |
| 6 | Abdoulaye Niasse | 4 | 0 | 0 | 4 | 8 | 3 | 0 | 0 | 5 | 8 | 3 | 0 | 0 | 3 | 6 | 22 |
| 7 | Lamine Gueye | 3 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 3 | 10 |
| 8 | Mixte Delafosse | 4 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 8 |
| 9 | CEM Isaac Foster | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 10 | CEM Martin Luther King | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 11 | Ahoune Sane | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| TOTAL | | 24 | 8 | 15 | 9 | 56 | 21 | 8 | 19 | 11 | 59 | 14 | 6 | 16 | 8 | 44 | 159 |

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## GOVERNMENT TECHNICAL SECONDARY SCHOOL

School Statistics Office

## NUMBER OF CLASSES

| Nber | Schools | NUMBER OF STUDENTS IN FINAL YEAR OF SECONDARY SCHOOL | | | | | NUMBER OF STUDENTS IN LOWER SIXTH FORM | | | | | NUMBER OF UPPER SIXTH STUDENTS | | | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | B | E | F | G | Tota l | B | E | F | G | Tota l | B | E | F | G | Total | |
| 1 | LTC Delafosse | 4 | 0 | 0 | 4 | 8 | 3 | 0 | 0 | 4 | 7 | 3 | 0 | 0 | 4 | 7 | 22 |
| 2 | LIT Delafosse | 0 | 3 | 7 | 0 | 10 | 0 | 3 | 8 | 0 | 11 | 0 | 2 | 9 | 0 | 11 | 32 |
| 3 | S. Limamou Laye | 5 | 2 | 4 | 0 | 11 | 5 | 2 | 5 | 0 | 12 | 4 | 2 | 3 | 0 | 9 | 32 |
| 4 | LT Ahmadou Bamba | 0 | 2 | 2 | 0 | 4 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 2 | 0 | 3 | 9 |
| 5 | LT André Peytavin | 1 | 1 | 4 | 1 | 7 | 1 | 1 | 4 | 2 | 8 | 1 | 1 | 2 | 1 | 5 | 20 |
| 6 | Abdoulaye Niasse | 4 | 0 | 0 | 4 | 8 | 3 | 0 | 0 | 4 | 7 | 3 | 0 | 0 | 3 | 6 | 21 |
| 7 | Lamine Gueye | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 9 |
| 8 | Mixte Delafosse | 4 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 4 | 13 |
| 9 | CEM Isaac Foster | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 10 | CEM Martin Luther King | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 11 | Ahoune Sané | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 3 |
| TOTAL | | 24 | 8 | 17 | 9 | 58 | 21 | 7 | 18 | 10 | 56 | 19 | 6 | 16 | 8 | 49 | 163 |

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## RESULTS OF TECHNICAL ADVANCE LEVEL
## 1992 SESSION

*School Statistics Office*

| Serial Number | Serie s | NUMBER OF CADIDATTES | | PASSED | PERCENTAGE OF SUCCESSFUL CANDIDATES |
|---|---|---|---|---|---|
| | | REGISTERED | PRESENT | | |
| 1. | B | 1.221 | 1.182 | 483 | 40,86% |
| 2. | E | 184 | 176 | 67 | 38,07% |
| 3. | F1 | 128 | 125 | 62 | 49,60% |
| 4. | F2 | 106 | 105 | 43 | 40,95% |
| 5. | F6 | 6 | 6 | 6 | 100,00% |
| 6. | F7 | 12 | 12 | 11 | 91,67% |
| 7. | G2 | 542 | 529 | 244 | 46,12% |
| TOTAL | | 2.199 | 2.135 | 916 | 42,90% |

## NUMBER OF STUDENT ACCORDING TO SPECIALTY AND DEPARTMENT AT ENSUT

| DIVISION | DEPARTMENT | NUMBER OF STUDENTS ACCORDING TO THEIR LEVEL OF TRAINING | | TOTAL |
|---|---|---|---|---|
| | | D.U.T. | D.I.T. or DESCAE | |
| INDUSTRIAL | CHEMICAL ENGINEERING | 26 | 23 | 49 |
| | CIVIL ENGINEERING | 41 | 10 | 51 |
| | ELECTRONICAL ENGINEERING | 42 | 5 | 47 |
| | MECHANICAL ENGINEERING | 10 | 5 | 15 |
| TERTIARY | INITIAL TRAINING | 113 | - | 113 |
| | COMPLEMENTARY TRAINING | - | 13 | 13 |
| | COMPUTER | 54 | 10 | 64 |
| | TOTAL NUMBER | | | 352 |

| | |
|---|---|
| D.U.T. : | University Diploma in Technology (A/L + 2 years) |
| O.I.T. : | Diploma in Engineering Technology (DUT + 2 years) |
| DESCAE : | Diploma in Higher Studies in Commerce and Administration the administration of enterprises (D.U.T + 2 years) |

## STATISTICS OF PROFESSIONAL EXAMS 1992

| Serial Number | Series | Number of Cadidattes | | Results | | Percentage of Successful Students (Who Were Present) |
|---|---|---|---|---|---|---|
| | | Registered | Present | Admis sible | Passed | |
| 1. | Higer Technician Diploma BTS | 179 | 174 | 104 | 87 | 50,00% |
| 2. | Technician Diploma Every Specialty Excep (LSLL) | 85 | 82 | 65 | 52 | 63,41% |
| 3. | Horticultural Technician Diploma BTH | 28 | 28 | 28 | 26 | 92,86% |
| 4. | Professional Studies Diploma BEP (Option Accountancy) | 618 | 582 | 215 | 158 | 27,15% |
| 5. | Professional Studies Diploma BEP (Option Secretary) | 160 | 150 | 42 | 34 | 22,67% |
| 6. | Professional Studies Diploma BEP (Industry) | 118 | 115 | 79 | 64 | 55,65% |
| 7. | Professional Studies Diploma BEP (Ness Making) | 29 | 28 | 23 | 12 | 42,86% |
| 8. | Professional Studies Diploma BEP (Bank) | 302 | 280 | - | 149 | 53,21% |
| 9. | Professional Aptitude Certificate CAP (Option Artisanal) | 38 | 35 | 25 | 23 | 65,71% |
| 10. | Professional Aptitude Certificate CAP (Option Industry) | 269 | 212 | 109 | 95 | 44,81% |
| 11. | Professional Aptitude Certificate CAP (Assistant Accountant) | 427 | 388 | 44 | 43 | 11,08% |
| 12. | Professional Aptitude Certificate CAP (Bank Employer) | 156 | 145 | 73 | 57 | 39,31% |
| 13. | Professional Aptitude Certificate CAP (Dactylography) | 302 | 286 | 95 | 82 | 28,67% |
| 14. | Professional Aptitude Certificate CAP (Stenography) | 5 | 2 | 0 | 0 | 0,00% |

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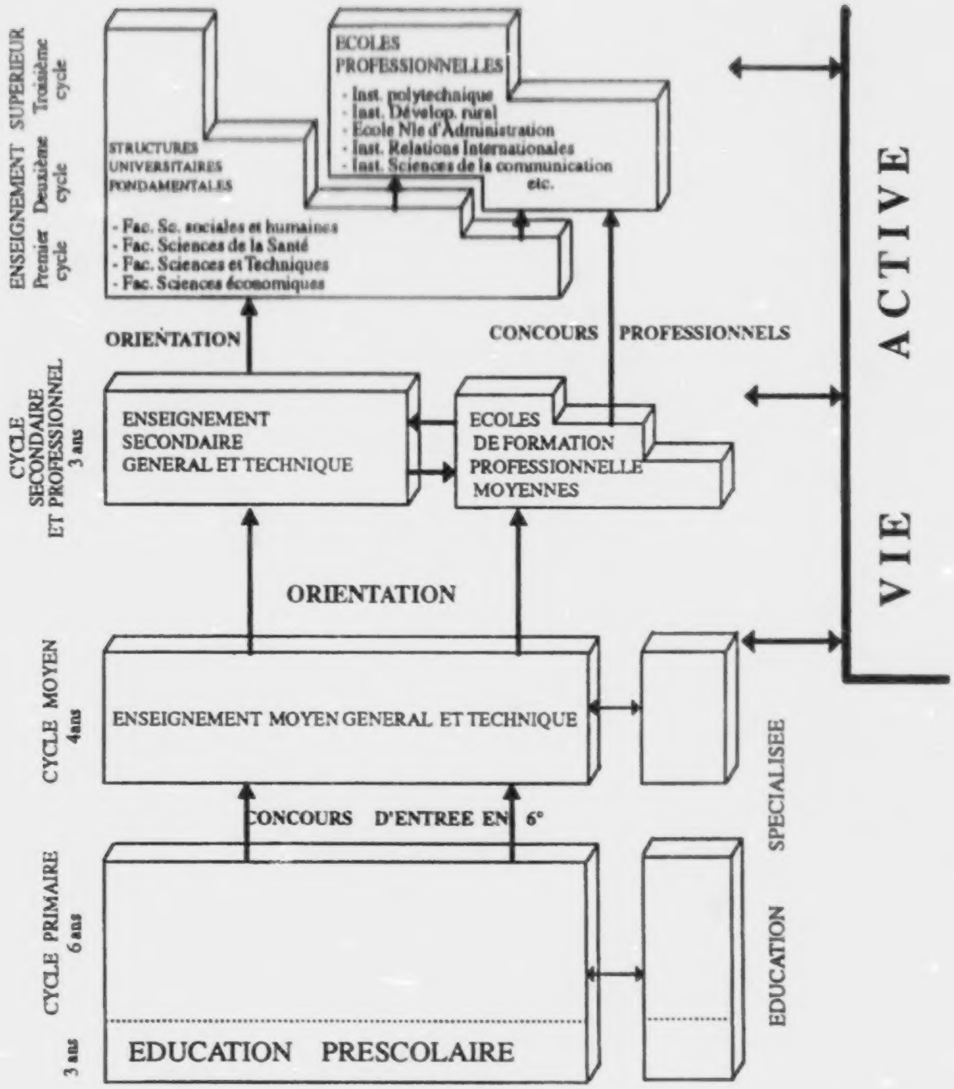
# ORGANIGRAMME DU SYSTEME EDUCATIF ACTUEL

## SENEGAL


ENSEIGNEMENT SUPERIEUR
Premier cycle
Deuxième cycle
Troisième cycle
STRUCTURES UNIVERSITAIRES FONDAMENTALES
- Fac. Sc. sociales et humaines
- Fac. Sciences de la Santé
- Fac. Sciences et Techniques
- Fac. Sciences économiques
ECOLES PROFESSIONNELLES
- Inst. polytechnique
- Inst. Dévelop. rural
- Ecole Nle d'Administration
- Inst. Relations Internationales
- Inst. Sciences de la communication
etc.
ORIENTATION
CONCOURS PROFESSIONNELS
CYCLE SECONDAIRE ET PROFESSIONNEL
3 ans
ENSEIGNEMENT SECONDAIRE GENERAL ET TECHNIQUE
ECOLES DE FORMATION PROFESSIONNELLE MOYENNES
ORIENTATION
VIE ACTIVE
CYCLE MOYEN
4ans
ENSEIGNEMENT MOYEN GENERAL ET TECHNIQUE
CONCOURS D'ENTREE EN 6°
CYCLE PRIMAIRE
6 ans
3 ans
EDUCATION PRESCOLAIRE
EDUCATION SPECIALISEE

# CHAPTER 12

# COOPERATION BETWEEN TECHNICAL AND VOCATIONAL EDUCATION INSTITUTIONS AND ENTREPRISES IN SWAZILAND

*B. S. MNDEBELE* and L. B. LUKHELE***

## BACKGROUND

Vocationalization policies in Swaziland are directed towards achieving greater labour market relevance of education and better articulation between the content of schooling and subsequent application of acquired skills in the world of work. The contemporary thrust to curriculum vocationalization is perceived as the potential for providing the pathway to wage employment or self-employment for the majority of youth who are not college or university bound. Vocational and technical education has the task of equipping the youth and school leavers with the competencies called for by the labour market. Psacharopolous (1985) succintly articulated that, "it is commonly thought that introducing a vocational element in the secondary school curriculum, especially in developing countries, is conducive to economic development" (p. 589). Such a thrust and focus represents an educational reform which in turn suggests a new educational mission for Swaziland in respect of teaching the "practical arts" studies.

This educational reform implies a mission whose goal is that all students, as well as out-of-school youth and adults, be prepared by the educational system, formal and non-formal, for wage employment or self-employment. Equipping students, out-of-school youth, and adults with appropriate knowledge, skills, and attitudes has the potential of increasing labour productivity and economic performance. Furthermore, such an educational mission acknowledges that the educational enterprise is not separate from the world of work. Indeed, the time is now to bring the two worlds of work and education together into one (Mndebele, 1993).

In the last decade and a half, reviews of research, literature, and commissioned studies in the education sector of Swaziland have continued to point to the urgent need to address the issue of the relevance of education to the Swaziland economic and sociopolitical context (Atherton, Duff, & Gailer, 1981); National Education Review Commission (NERCOM), 1985; International Labour Office, 1986; Special Committee to Study Pre-Vocational Education, 1990). Highlights of some of the more recent and relevant education sector reviews and commissioned studies finds related to the need for a vocationalized secondary school curriculum within formal education as well as the need for non-formal vocational education, and the critical need for an effective vocational teacher education programme in Swaziland schools, are presented in this paper.

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** Leonard B. LUKHELE : Principal, College of Education, Swaziland.

In the Education and Training Sector Review report on Swaziland by Atherton, Duff aand Gailer (1981), a recommendation was made for the "expansion of secondary level education closely tied to employment possibilities" (p.v). Furthermore, they predicted and warned against unemployment of school leavers. They called for adding training in a wide range of technical and vocational education, diversified activities, and alternative programmes of study to the formal academic education system of a colonial heritage and legacy.

The National Education Review Commission (NERCOM) appointed in 1985 to isolate the main problems associated with the relevance of education to the national manpower and economic needs, recommended the establishment of alternative education such as vocational technical education. Such an education will link education to the world of work, and schools and schooling to business and industry (Mndebele, 1993). Such a diversification of the secondary curriculum would cater to the different aptitudes and talents of students with the selection of subjects in the schools offering suitable choices of academic and vocational subjects.

Educansult Limited (1992) clearly indicated the need for a study whose findings will identify the professional vocational technical education competencies needed by teachers to enable them to deliver a school vocational technical curriculum, and Mndebele's (1993) study focuses on the development of these competencies. Furthermore, the study expressed that teacher training programmes at the University of Swaziland (UNISWA) and the Swaziland College of Technology (SCOT) must be significantly expanded to provide vocational technical teacher education for secondary and primary teachers for the vocational areas of Business and Commerce, Home Economics/Hospitality and Technical Subjects. The launching of a vocational secondary school curriculum entails the participation and involvement of business and industry in terms of curriculum input, work-based learning experiences for students, and an advisory responsibility (Mndebele, 1993). Swaziland with an economy characterized by specialization, openness and a free market has the potential for a successful vocational eduation curriculum.

## ANALYSIS OF THE ECONOMIC AND SOCIAL CONTEXT OF VOCATIONAL AND TECHNICAL EDUCATION

### *The Economy and Labour Market Relevance of Education: An Overview*

The Swaziland political rhetoric of labour market relevance of the secondary education curriculum remains a major item of the Government's educational agenda. Swaziland, as a developing nation with an economy characterized by specialization, openness, free-market and dualism, has curriculum vocationalization policies that are a quest for a greater labour market relevance of education. Such a quest may provide for better articulation between the content of schooling and subsequent application of acquired knowledge, skills, and attitudes in the world of work.

The economy of Swaziland comprises four defining characteristics (Capricorn Africa Economic Associates, 1990) :

- A specialized economy in which much of the activity is either directly related to or depends on the goods produced by the agriculture or forestry sector.
- An open economy in that the small scale of its domestic market means that much of what is produced locally finds its way into external markets
- A free-market economy in which the direct role of the government in the economy is much limited.
- A dualistic economy with a modern sector (where most of the production for the market originates) and a traditional sector (where most of the people produce for their own consumption). (p.3)

The modern sector of the economy of Swaziland in contrast to the traditional sector can further be categorized into two distinct sectors, namely: the private sector of the large firms and the small firms, and the small business enterprises. The small business enterprises link themselves to entrepreneurship education by the inherent nature of their character and activities. Entreprenueurship education is a programme that prepares individuals to undertake the formation and operation of small business enterprises for self-employment, whereas the purpose of vocational technical education is the preparation for employment. Entrepreneurship activity is a by-product of the vocational/education experience leading to self-employment for those who create their own employment. Hence, small business management/entrepreneurship has strong implications for vocational education in respect to smaller firms/businesses and their development in Swaziland.

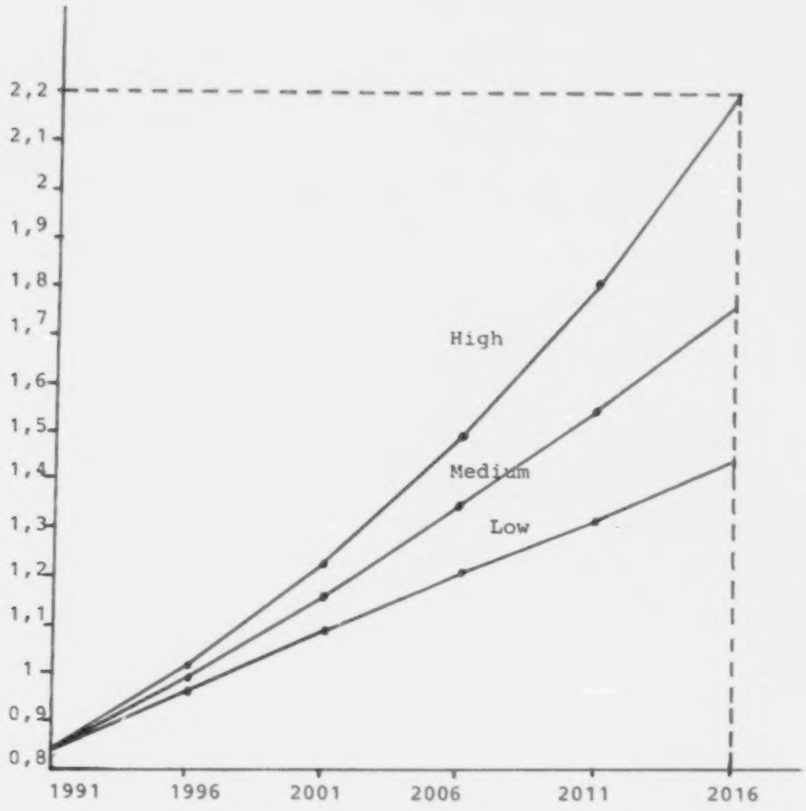
Small businesses, which are within the private sector of the Swaziland economy, are characterised by the following features (Capricorn Africa Economic Assiciates, 1990) which link them to vocational education and entrepreneurship education :

- *Ownership.* The majority of the small business enterprises are owned by Swazi women.
- *Labor mix.* Smaller businesses are more likely to employ female labour. They are also more likely to employ Swazis in all skill areas than are the large businesses.
- *Experience.* In general smaller businesses have less business management experience than the larger businesses.
- *Marketing and demand.* Smaller businesses have difficulty improving sales volume primarily due to dificult in getting products to the market, and a lack of adequate market information.
- *Access to production input.* Small businesses are more likely to experience difficulty in accessing raw materials due to difficulty in obtaining financing/credit and transport.

*Organizational Infrastructure.* In general, small businesses do not belong to business associations, and there is very little contact between large businesses and small ones (p.1).

Swaziland has a population of 681,059 with an average annual growth of 3.3%. Figure 1 shows the projected population growth for Swaziland and Table 1 shows population by region. According to United Nations' estimates and the Economist Intelligence Unit (EIU) (1991/92), 82% of the primary school age group were enrolled in 1989 and 43% of secondary school age group with some 4% of 20-24 year were undergoing some post-secondary education. In Swaziland, education is the largest element of recurrent government expenditure with its share of the total budget estimated at 33% in the 1991/92 budget.

Figure 1 : **Projected population growth scenarios - Swaziland**



Source: J. G. C. Bleaker: "Fertility, Mortality and Population Growth in Swaziland, 1990" cited in Educansult Limited, 1992

The pivotal sector of the country's economy is agriculture. However, manufacuring has the highest gross domestic product growth rate. Swaziland is heavily dependent on the agro-industrial production of sugar and timber. Land tenure and use in Swaziland remains a big issue. Under the prevailing system of land distribution, some 45% is held on a freehold basis as Individual Tenure Farm (ITF) sometimes called Title Deed Land (TDL), and the remainder "held in trust" by the Monarch is controlled and allocated by chiefs according to traditional arrangements (The Economist Intelligence Unit, 1991/92)

Swazi Nation Land (SNL) in 1986 accommodated 69.5% of the country's population although most of the people are engaged in some kind of wage employment somewhere else. About 60% of the country's cropland covers production on SNL where maize and cotton are the main crops grown. About 75% of families on SNL are partially dependent on wage income, and about 65% own cattle (The Economist Intelligence Unit, 1991/92).

Table 1 : **Population by Region - Swaziland**

| Population by Region | 1976 | 1986 | Average Annual Growth Rate % |
|---|---|---|---|
| **Manzini** | 139,538 | 192,596 | 3,3 |
| **Hhohho** | 133,493 | 178,936 | 3.0 |
| **Shiselweni** | 117,172 | 155,569 | 2.9 |
| **Lubombo** | 104,331 | 153,958 | 4.0 |
| Total | 494,534 | 681,059 | |

*Source : Department of Economic Planning and Statistics, CSO, Annual Statistical Bulletin (cited in The Economist Intelligence Unit, 1991/92)*

About 25% of the country's economically active population is employed in the modern wage sector (Capricorn Africa Economic Associates, 1990), and the 75% remaining are subsistence farmers on Swazi Nation Land (SNL). Figure 2 shows the distribution of employment in Swaziland, whereas Figure 3 indicates employment by economic sector. However, it must be noted that both urban and rural dwellers in Swaziland actively participate in the money economy. Table 2 portrays formal and informal estimates of paid employment.

Figure 2 : Distribution of employment

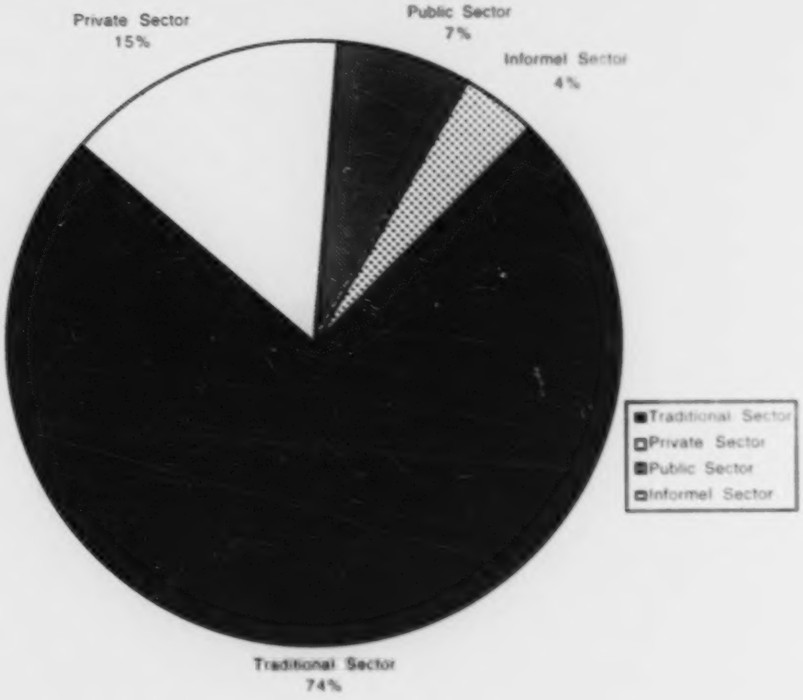


Figure 3 : **Employment by Economic Sector**

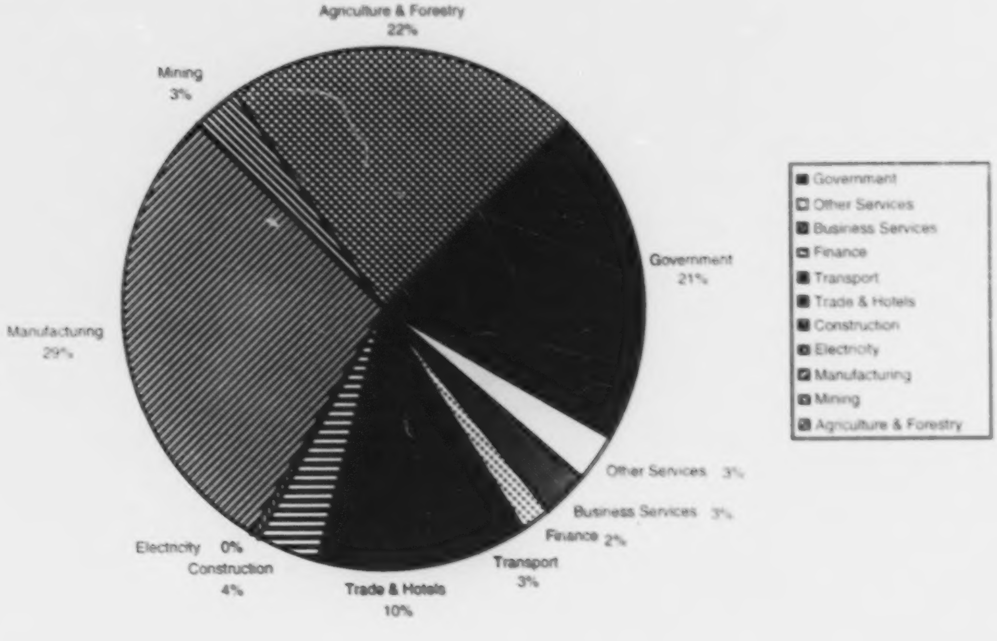


Table 2 : **Estimates of Paid Employment**

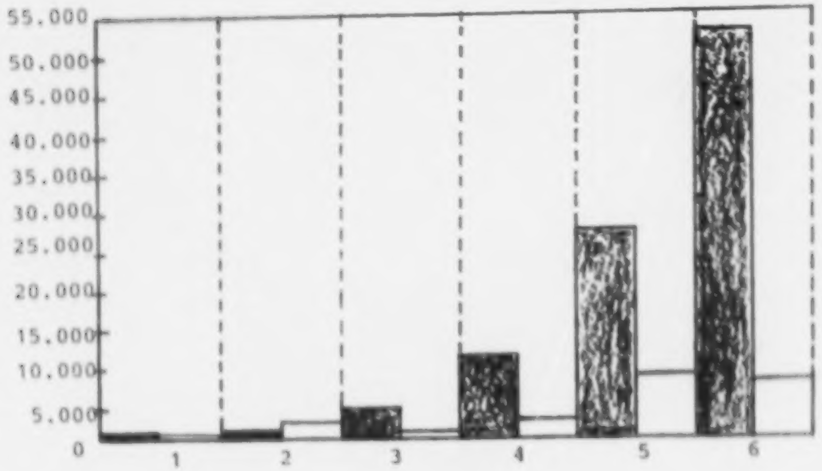
| | 1985 | 1986 | 1987 | 1988 [a] | 1989 [a] | 1990 [b] |
|---|---|---|---|---|---|---|
| Formal employment of which : | 72,884 | 76,405 | 82,744 | 87,888 | 91,531 | 95,951 |
| Private Sector | 50,533 | 52,970 | 58,313 | 61,751 | 64,452 | 68,553 |
| Public Sector | 22,351 | 23,435 | 24,431 | 26,137 | 27,079 | 27,398 |
| Informal Employment | 12,341 | 12,546 | 12,800 | 13,100 | 13,493 | 13,898 |
| **Totals** | **85,225** | **88,951** | **95,544** | **100,988** | **104,374** | **109,849** |

[a] Revised. [b] Provisional

*Source : Department of Economic Planning and Statistics (cited in The Economist Intelligence Unit, 1991-92*

While Swaziland has a surplus of unskilled and semiskilled labour, there are acute shortages of technical, managerial and supervisory skilled personnel. Although the abundant labour pool ranges from unskilled to semiskilled, it is literate, numerate and thus, can be skilled. A labour pool of this mix has strong implications for vocational technical education at the secondary/high school and post-secondary education levels. Figure 4 is a comparison between the forecast of skilled job opportunities and projected output of the educational system by skill groups. To this end, the Economic Planning Office, (1993/98, pp. 116-117) expressed that there exists a demand/supply disequilibrum with respect to trained people and the type of available employment opportunities. Thus manual workers and those qualified for clerical positions will be oversupplied while scientific and technical professionals will be undersupplied during the coming decade.

Figure 4: Comparison between forecast of skilled job and projected output of the educationa system by skill groups for 1986-1993



1 : Professional Technical Occupations
(University Degree: Mathematics/Science)

2 : Other Professional Occupations
(University Degree: Humanities/Liberal Arts)

3 : Sub-Professional & Technician Occupations
(Post Secondary Diploma : Mathematics/Science or Technical Education Diploma)

4 : Other Sub-Professional Occupations
(Post-Secondary Diploma: Non-Mathematics/Science)

5 : Skilled Clerical and Manual Occupations
(Completion of General Secondary)

6 : Semi-Skilled Clerical Manual Occupations
(Intermediate Level Education or Literacy (at least)

▨ Projected Output of Education System

☐ Number of Positions Available in System

Source: Educansult Limited, 1992

## SMALL BUSINESS DEVELOPMENT AND ENTREPRENEURSHIP EDUCATION

The social and economic environment in Swaziland, with respect to vocational technical education, calls for a creation of a full partnership between prospective employers and educators in preparing individuals for the workforce. This is true for those looking forward to wage employment. However, for those who may finish high school with little hope for wage employment or post-secondary education, and yet have a desire for self-employment, then the involvement of small businesses in formal and non-formal vocational technical education programmes becomes an absolute necessity. Vocational education, formal and non-formal, can expand its horizons to provide new options for students and thus, contribute to increased productivity through involvement in entrepreneurship education. If entrepreneurship education is to permeate all of education, this suggests that vocational education/teacher training efforts should include preparation in the concepts and practices of entrepreneurship education. There is a need to integrate vocational education and entrepreneurship education.

Swaziland has a limited industrial base with 25% of the country's economically active population employed in the modern wage sector (see Figure 2).

With a limited industrial base, entrepreneurship education and self-employment should be presented to students as a career option. Processes for entrepreneurship should be initiated at both the secondary and post-secondary education levels. For out-of-school youth who are unemployed, thus, at risk, and adults, non-formal vocational technical education should be strengthened. The term entrepreneurship describes individuals who have economic opportunities for themselves and others through their ability to look beyond what presently exists within the job opportunity arena.

Entrepreneurs create "new" businesses, and can also reshape jobs into positions which are more productive. The need to expand abilities of individuals to analyse their own generic occupational skills to create and expand the present Swaziland economic base is critical for a sustainable economic growth.

Swaziland has a free market economy thus, creating a business environment favourable for small business development and entrepreneurship. Small businesses have a major role to play in responding to the problem of youth unemployment. Small business enterprises and entrepreneurship as a by-product of the vocational education experience have been perceived as having a business environment conducive to their operations and development in addressing the problem of youth unemployment. Some of the potentials which Swaziland offers to foster and facilitate small business development and entrepreneurial business activity for growth and expansion in Swaziland are briefly discussed below (Capricorn Africa Economic Associates, 1990).

### *Political Stability*

Swaziland has enjoyed peace and stability for an extended period of time. Furthermore, Swazi people are a single ethnic group posing no concern for tribal rivalry. Such an environment is conducive for business activity to thrive.

### *Access to a Network of Services and Markets.*

Because of its proximity to South Africa, Swaziland presents a business environment that has a wide variety of services and markets that are easier and less expensive to access relative to business environments of some other African countries.

### *Access to an Educated and Inexpensive Labour Force.*

The labour pool in Swaziland is better than functionally literate, numerate and able to communicate in English. Wages are relatively reasonable in Swaziland, thus enabling small business entreprneurs to engage such a labour force in their enterprises.

### *Availability of Small Business Support Organisations.*

In Swaziland four bodies represent employers who are engaged in commercial and economic activities, namely: the Federation of Swaziland Employers; the Swaziland Chamber of Commerce and Industry; the Commercial Amadoda; and Sibakho. Small business enterprises, which are primarily owned by Swazis, are represented by Commercial Amadoda to a lesser extent and Sibákho to a greater extent. Although these business associations represent the interests of small business enterprises, they have received low effectiveness ratings from their constituents (Capricorn Africa Economic Associates, 1990). Development assistance organisations and non-governmental organizations (NGO's) support small business enterprises. Swazi Business Growth Trust (SGBT) serves the purpose of boosting Swazi owned businesses which usually fall under small business enterprises.

### *Public Policy to Assist Small Business Development*

The Swaziland Government has initiated development assistance programmes for the purpose of promoting small business development. In the recent past, the Government has begun to delineate large scale businesses as distinct from small businesses in character, services offered, and target population. Such a distinction is critical to the success of the small businesses; for competition is eliminated between the large scale business owners and small business entrepreneurs.

### *Constraints to Small Business Development*

There are constraints to the development of small businesses in Swaziland. These pose as bottlenecks in the promotion and development of small business enterprises. These enterprises, by the nature of their activities, link themselves to entrepreneurship education, a by-product of the vocational education experience.

### *Lack of Access to Credit*

With all the Government enthusiasm and political rhetoric in support of small business development, the financial assistance of credit to small business enterprises does not reach the small enterprise business person who needs it the most. Many to most of them lack adequate security as collateral. Small business entrepreneurs are also of the opinion that formal banking institutions are not interested in their size of operations ; this perception has an element of truth in it. However, the Business Management Extension Programme (BMEP) serves in an advisory capacity, and the Asikhutulisane Credit Society caters to the credit needs of small business entrepreneurs though spread rather thinly because of the numbers of such entrepreneurs needing credit.

### *Land Tenure System*

Land ownership in Swaziland is primarily divided into two categories, namely : title Deed Land (TDL) ; and Swazi Nation Land (SNL). Swazi National Land is not developed to its full potential, hence lagging behind Title deed land in productivity and output. Furthermore, it cannot be used as collateral thus, posing a constraint for those with vocational agriculture skills/training wishing to obtain credit to farm on Swazi Nation Land. Commercial agricultural production for small business entrepreneurs is indeed constrained by the land tenure and use in Swaziland. Small farm business entrepreneurs with vocational agricultural skills training are left with cattle as collateral, which encourages the expansion of livestock sizes contrary to the Ministry of Agriculture's destocking policies. This scenario is a good example of a Cath-22, a no-win situation for the prospective entrepreneur.

### *Lack of Business Managerial Skills*

Small business entrepreneurs not only lack business management skills, but also tend to show very little interest in acquiring accounting, marketing, and financial management skills. Their failure to follow basic and sound business management practices often affects the growth of their businesses. These entrepreneurs, because of their small size of operation, cannot afford the services of an accountant or bookkeeper.

## NATIONAL POLICY ON VOCATIONAL AND TECHNICAL EDUCATION

As a matter of policy, the Ministry of Education has selected priority project components with respect to spearheading vocational technical/pre-vocational education in line with the educational reforms and restructuring underway. Such *structural adjusments* in the education sector of Swaziland are a response to the public outcry for lack of relevance of schooling and tertiary education to the world of work (Mndebele, 1993). For many years in Swaziland education reform efforts have focused on toughening academic requirements for students. The goal was to prepare students for higher education. Then in 1985 the *National Education Review Commission* (NERCOM) released their report which pointed the need to diversify the primary and secondary school curricula to strongly emphasize vocational and technical subjects including agriculture, business, home economics, and technical trade skills. This further pointed out the need to maintain a close link between educational planning, and economic and manpower planning by the Swaziland Government.

The NERCOM study marked a turning point in the education reform movement. It spawned a series of reports stating that schools should prepare students for the world of work as well as college/university; hence, leaders in education, business and politics have trumpeted the restructuring of schools as a key to (Special Committee to Study Pre-Vocational Education, 1990) :

- Harmonizing manpower demands with education ;
- Improving occupational-educational linkages ;
- Confronting the problems of the educated unemployed ; and
- contributing to rural transformation in Swaziland.

These *structural adjustments* call for vocational technical competencies that prepare students as the potential workforce for the existing and future workplace. Among the competencies implied are :

- Basic skills in reading, writing, mathematics, speaking and listening ;
- thinking skills of problem solving and decision making ;
- Personal qualities of responsibility and integrity ;
- Resources allocation of people, data, and things ;
- Interpersonal skills of working with others in harmony ; and
- Understanding and utilization of information technology.

The national education policy of the Ministry of Education (MOE), as it relates to vocational technical education in Swaziland, places focus on the diversification of the curriculum particularly at the primary and secondary schools levels. Below are excerpts from the Economic Planning Office (1993/96). These extracts reflect the Government's policy as it pertains to vocational technical education.

In order to make the most of pupil's diverse talents and to enable them to make appropriate choices for higher education and careers, a wider curriculum will be offered in the proposed nine-year basic education programme. Efforts have been made with donor assistance to diversify the curriculum at the lower grades, but less progress has been made at higher grades. As at the end of 1992, approximately half of all primary schools were offering the diversified curriculum. This exposes students to a number of practical subjects such as agriculture, home sciene, technical and commercial studies (p. 114).

After the seven years of primary (elementary) education, the secondary level offers both academic and practical subjects under the present system. The proposed pre-vocational (vocational) education programme will offer academic and pre-vocational (vocational) courses. The prevocational (vocational) education programme will begin with exploratory activities in practical subjects at Grades 8, 9 and 10 and then gradually narrow the focus in Grades 11 and 12 to more specific skills for distinct vocations. This programme will include a combination of academic subjects and performance activities geared towards enabling the high school graduates to enter the job market at a basic level or initiate a self-directed enterprise (entrepreneurship). The programme should further enable students to proceed to vocations and higher technical education closely reflecting the changing conditions and demands of the labour market (p. 115).

A major objective is to diversify the curriculum at the secondary level and increase the number of schools offering practical subjects. The School's Agriculture Programme which is aimed at teaching the value of sound agricultural practices, has already started on a pilot basis in a few selected schools such as Mpaka, Ngwane High Schools. During the Plan period (1993/98), it will be expanded to 16 pilot high schools in the 4 Regions. This type of education is intended for children for whom basic education is likely to be the terminal point. The purpose is to increase their skills and potential when they enter the labour market. (p. 115-116)

In order to prepare school leavers better for opportunities in the labour market or self-employment, Government decided to offer an alternative to academic education and established Vocational and Commercial Training Institute - Matsapha (VOCTIM) to teach technical and vocational subjects. The policy of this Institute is to survey the needs of industries and mount courses to satisfy these needs (p. 117).

All available information suggests that there exists a demand/supply disequilibrum with respect to trained people and the type of available employment opportunities. The disequilibrium varies according to level and type of skill. Thus, manual workers and those qualified for clerical positions will be oversupplied while scientific and technical professionals will be undersupplied during the coming decade. In order to offset this problem, Government is committed to an appropriate expansion of post-secondary facilities which include both an expansion of University facilities to accommodate the more highly qualified Swazi school leavers, and the creation of opportunities to pursue more technical and vocational subjects through institutions such as Vocational and Commercial Training Institute-Matsapha and Swaziland College of Technology. (p. 116-117).

The Industrial and Vocational training Act enacted in 1982 established the Directorate for Industrial and Vocational Training. The Act, when it was enacted, had the following as its major objectives :

- Promotion of industrial and vocational training in Swaziland
- Dissuasion of employment of apprentices and trainees as a form of open-ended cheap labour ;
- establishment of a training levy system which would provide funds for the promotion of industrial and vocational training ; and
- Introduction of a regulatory system for the proper monitoring and control of industrial and vocational training in Swaziland.

The Industrial and Vocational Training Board is an advisory body whose main function is to advise the Minister of Labour on policy matters pertaining to vocational/technical training. With its limited executive authority, the Board's decisions are implemented through the office of the Director. The Directorate is the Industrial and Vocational Training Board's executive arm providing for the Board's administrative needs. The Chairman of the Board, one representative of all the vocational/technical training institutions in Swaziland, a Ministry of Labour representative, and about five representatives from the business and industry sector constitute the Industrial and Vocational Training Board; the Director who serves as the secretary of the Board, is responsible for the day-to-day operations of the Directorate. Linked to the Board, through the office of the Director, are Advisory Committees that service the Board, whose roles are provided for in the Act.

## FORMAL VOCATIONAL AND TECHNICAL EDUCATION

### *Background*

The impetus for vocationalization of the secondary and postsecondary curricula in Swaziland emerged as a socioeconomic response to lack of linkages between education and occupations in the workplace. Vocational technical education drives in Swaziland are a quest for greater labour market relevance of education for better articulation between the content of schooling and subsequent application of acquired skills, attitudes, and knowledge (competencies) in the world of work (Mndebele, 1993). Subsequently, due to concern about the labour market relevance of education, the Swaziland Government through the Ministry of Education (MOE) appointed a National Education Review Commission (NERCOM) in 1985. As pertaining vocational technical education, the purpose of the Commission was to isolate the main problems associated with the relevance of education to the national needs.

Such a diversification of the curriculum, it was envisaged, would cater to the different aptitudes and talents of students with the selection of subjects in the schools subject offerings suitable for choices of general (academic) and vocational technical subjects. The NERCOM findings constituted the basis for the recent eduational reforms and developments in the Swaziland vocational technical education subsector of the education sector.

Following up to the NERCOM report findings, and as a strategy for the implementation of some of the NERCOM recommendations, the Ministry of Education appointed the Special Committee to study Pre-Vocational Education (1990).

In the main, the terms of referene for the committee were (1990) :

- To define the problems presently concerning pre-vocational/vocational education placing these in the wider context of the mutual adaptation of the educational system and the macro-economic environment
- To define the relationships between school vocational technical education in the context of the development of a broader curriculum and greater degree of preparation of students for the world of work
- To review (a) the primary and secondary school curricula ; (b) curricula of vocational technical institutions ; and (c) the school curriculum and how it relates to vocational technical institutions.
- To recommend structures for the delivery of a vocational/pre-vocational education programme which will fit into the existing educational system.
- To provide details of resource requirements in order to implement the recommended programme.

In launching a vocational/pre-vocational education programme in Swaziland, certain requirements in respect of structures, facilities, equipment and personnel were identified and recommended by the Committee. Identified as some of the requirements for starting a vocational/pre-vocational education were the following (Special Committee to Study Pre-Vocational Education, 1990) :

- Conducting needs assessment studies with industry, the informal sector and communities to determine the demand for vocational/pre--vocational education ;
- Undertaking a feasibility study and determining the level of training ;
- Working out a network of specific subjects that should constitute a cluster of competencies compatible with the school curriculum ;
- Developing curricula and teaching materials ;
- Developing a scheme for teacher training to upgrade experiened teachers in specific competencies ;
- Determining the size and scope of workshop facilities and equipment ;
- Conducting a school mapping exercise to determine which school should feed specific vocational institutions and which skills shall be taught in each institution ; and

- Developing a plan of operation for follow-up programmes in the private sector and the public sector.

In fulfilling its commitment to strengthening the educational system to better serve the needs of students and the economy, and in pursuit of the recommendations of the Special Committee to Study Pre-Vocational Education (1990), the Government of Swaziland instituted a Project Preparation Study, funded by the African Development Bank in 1991/92. The purpose of the study was to examine a number of potential projects for future funding by the Bank. In the context of educational and economic imperatives, the potential project areas appraised and prioritized were (Educansult Limited, 1992) :

- Procurement of equipment and facility construction for 16 pilot secondary schools to support the introduction of the vocational/pre-vocational curriculum ;
- Strengthening the National Curriculum Centre to provide for curriculum and learning materials development for the vocational/pre-vocational programme implementation ;
- Technical assistance to support the implementation of in-service teacher training programmes at the University of Swaziland and the College of Technology (SCOT) for training vocational and technical teachers in the delivery of vocatioal and technical education instruction ; and
- Identification of the career and life paths of graduates of the vocational/pre-vocational programme for purposes of determining whether the objectives of the programme were achieved.

In order to make the most of pupils' diverse talents, and to enable them to make appropriate choices for higher education and careers, the Government is proposing a diversified curriculum to expose students to a number of vocational subjects such as vocational technical studies. Tables 3 and 4 present the numbers of pupils and teachers in the primary and secondary schools, respectively. Figure 5 presents Swaziland Education Pyramid and Enrollment by gender.

Table 3 : **Number of Pupils and Teachers in Primary Schools (1986-1996)**

| Year | Number of Pupils | Number of Teachers | Pupil/Teacher Ratio |
|---|---|---|---|
| **1986** | 142,206 | 4,290 | 33.1 |
| **1987** | 147,743 | 4,462 | 33.1 |
| **1988** | 152,895 | 4,665 | 33.1 |
| **1989** | 157,345 | 4,890 | 32.1 |
| **1990** | 166,454 | 5,083 | 33.1 |
| **1991** | 172,908 | 5,584 | 30.9 |
| **1992*** | 176,248 | 5,852 | 30.1 |
| **1993*** | 181,359 | 6,133 | 29.6 |
| **1994*** | 186,618 | 6,427 | 29.0 |
| **1995*** | 192,030 | 6,737 | 28.5 |
| **1996*** | 197,599 | 7,059 | 28.0 |

*Source : Economic Planning Office, 1993 (Ministry of Education * Projections)*

Table 4 : **Number of Pupils and Teachers in Secondary Schools, 1986-1996**

| Year | Number of Pupils | Number of Teachers | Pupil/Teacher Ratio |
|---|---|---|---|
| 1986 | 30,489 | 1,617 | 18.9 |
| 1987 | 32,914 | 1,760 | 18.7 |
| 1988 | 32,942 | 1,906 | 17.3 |
| 1989 | 41,881 | 2,088 | 20.1 |
| 1990 | 41,128 | 2,213 | 18.9 |
| 1991 | 42,405 | 2,430 | 17.5 |
| 1992* | 47,259 | 2,668 | 17.7 |
| 1993* | 50,662 | 2,927 | 17.3 |
| 1994* | 54,310 | 3,211 | 16.9 |
| 1995* | 58,220 | 3,523 | 16.5 |
| 1996* | 62,412 | 3,865 | 16.1 |

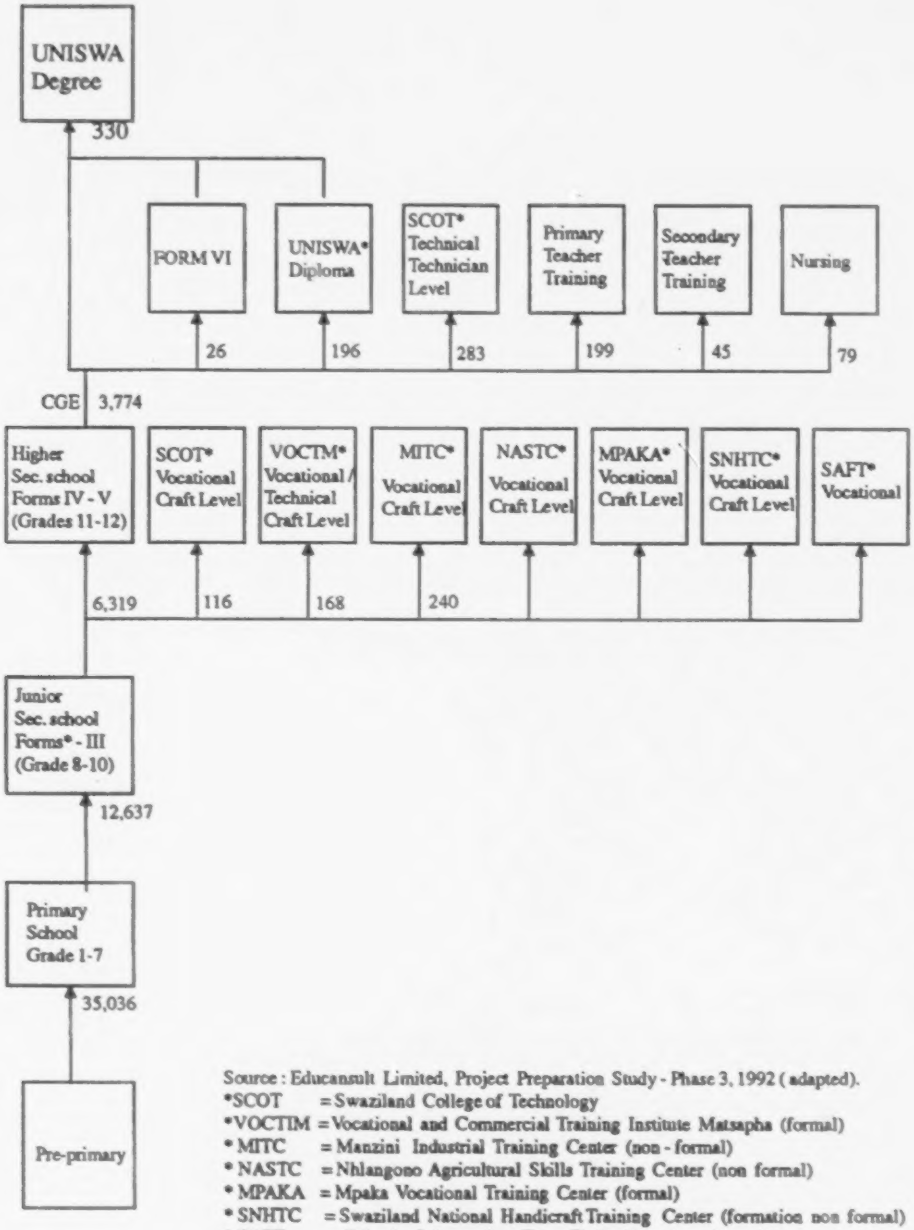
*Source : Economic Planning Office, 1993 (Ministry of Education Projections)*

### *Organisation and Structure*

Organisation and structure of vocational/pre-vocational technical education within the formal school system is composed of four service/programme areas, namely : Agriculture, Commerce, Home Economics and Technical Studies. These programme areas are deemed appropriate on the basis of national manpower needs, and pedagogical and cost factors. With respect to the agriculture areas, Swaziland has an agroindustrial based economy, thus agriculture remains a pivotal sector of the country's economy. Commerce is intended to provide students with accounting and business experiences as well as entrepreneurial (small business management) skills. Home Economics which is inclusive of textile, hospitality, and related technologies is an area that provides students skills to be translated to a commercial context. Finally, the technical studies area which is inclusive of woodwork, metal work, and technical drawing provides students with skills in design and construction technology.

Though these four areas are currently offered in selected secondary schools, they are not taught as vocational subjects, but rather as practical subjects ; thus they are not linked to job opportunities both in the wage and nonwage employment sectors. The service area organisation presented here represents both the current situation to a lesser extent, and the proposed structure to a greater extent. Furthermore, these subjects are taught under the current organisation, in grades 8 through 12 (Form I to V). The structure and organisation, and the flow of students through the educational system are presented in Figure 6.

Flow of Students Through Major Swaziland Educational Institutions showing First Year Intakes


UNISWA Degree
330
FORM VI
UNISWA* Diploma
SCOT* Technical Technician Level
Primary Teacher Training
Secondary Teacher Training
Nursing
26
196
283
199
45
79
CGE
3,774
Higher Sec. school Forms IV - V (Grades 11-12)
SCOT* Vocational Craft Level
VOCTM* Vocational / Technical Craft Level
MITC* Vocational Craft Level
NASTC* Vocational Craft Level
MPAKA* Vocational Craft Level
SNHTC* Vocational Craft Level
SAFT* Vocational
6,319
116
168
240
Junior Sec. school Forms* - III (Grade 8-10)
12,637
Primary School Grade 1-7
35,036
Pre-primary

Source : Educansult Limited, Project Preparation Study - Phase 3, 1992 ( adapted).
*SCOT = Swaziland College of Technology
*VOCTIM = Vocational and Commercial Training Institute Matsapha (formal)
* MITC = Manzini Industrial Training Center (non - formal)
* NASTC = Nhlangono Agricultural Skills Training Center (non formal)
* MPAKA = Mpaka Vocational Training Center (formal)
* SNHTC = Swaziland National Handicraft Training Center (formation non formal)
* SAFT = School of Appropiate Farm Technology (non formal)
* UNISWA = University of Swaziland (formal)

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### *Examinations*

Current practice insofar as the examinations of these practical subjects are concerned, as well as the other general (academic) subjects, occur at two exit points, namely, the Junior Certificate (J. C.), at the end of grade 10, and the Ordinary School Leaving Certificate ("O" levels). These examinations are set by external (to the school) examining boards. The current approach is subject-based rather than competency-based as now proposed. The proposed competency-based format of evaluation of student learning in vocational technical education provides for a continuous assessment system thus, providing an opportunity for the instructor to monitor the learner's progress for remediation as the need arises.

### *High Drop-Out Rates*

The Swaziland education system experiences inefficiencies which are both internal and external that put constraints on the performance of formal and non-formal education. These inefficiencies manifest themselves in the high proportions of students that either drop out of school or classes. Data from the Central Statistical Office (cited in Educansult, 1990) indicate that 25% of the students that begin school in a given cohort reach the last year of primary (elementary) school, 18.7% enter secondary, and 3.6% get to grade 12. Analyzing these data in terms of repeat and dropout rates for the 1989/90, the repeat rates of 19% (grade 1) and 11% (grade 7) were observed. Repeat rates at the secondary for the same year were : 9% (grade 8), 14% (grade 9), 6% (grade 10) and 12.7% (grade 11) (Educansult Limited, 1990).

The three major reasons for dropping out of primary (elementary) school found in the 1986 study *Wastage in the Education System* as reported by teachers, parents, and dropouts in the order of importance were (Ministry of Education, 1986) : "Financial difficulties," "Lack of interest in studies," and "Dissatisfaction with education". At the secondary level, reasons for dropping out advanced in order of importance were : "Lack of interest in studies," "A higher grade is too far from home", and "Financial difficulties". Teacher respondents reported, "Lack of interest in studies," as the most important cause. "Lack of interest in studies" and "Dissatisfaction with education", as the major causes of dropping out may as well have a direct causal relationship with the fact that the curriculum is irrelevant to the needs of the students and the labour market needs ; and the instructional delivery system does not equip students with the competencies that enhance their wage employability or self-employment.

### *TVE Curriculum*

All curriculum development falls under the auspices of the National Curriculum Centre (NCC). The current curriculum development process activities entail production of teacher and student materials. In the production of these materials subject associations and subject panels are major participants.

The proposed curriculum development approach, with the launching of a secondary vocational technical education programme in Swaziland, is a modular approach or format. This approach is preferred because of its flexibility, thus, providing students with the opportunity to proceed at their own pace. The continuous assessment evaluation system which is also being introduced in the Swaziland education system, links well with a modular curriculum development approach.

Unlike with other service areas (Commerce, Home Economics and Technical), Agriculture has already been introduced as a pre-vocational subject; It is established at six secondary schools on a pilot basis with the technical assistance of the European Comunity. The program's curriculum content, delivery system, and evaluation procedures need a lot of working on to render the programme vocational.

Along with the launching of a pre-vocational agriculture programme in the six secondary schools, a one-year pre-vocational teacher education programme was started at the University of Swaziland (UNISWA) by the Faculty of Agriculture. A technical assistance post funded by the European Community was established for the purpose of training pre-vocational agriculture teachers in the delivery of pre-vocational/vocational instruction. Although the focus of this training is on the delivery of instruction in grades 11 and 12 (Form IV and V), plans are underway to expand it from two years to five years, grades 8 to 12 (Form I to V).

## VOCATIONAL TRAINING INSTITUTIONS

In pursuit of the commitment to prepare school leavers better for opportunities in the labour market or self-employment, the Ministry of Education established formal vocational/technical education postsecondary institutions; below is a brief description of the vocational profiles of selected major institutions.

### *Vocational and Commercial Institute-Matsapha (Gwamile)*

The Vocational and Commercial Training Institute - Matsapha (VOCTIM) offers technical and commercial training with two main objectives (Vocational and Commerial Training Institute, Prospectus, 1992) :

- Enabling Swaziland's public and private sector establishments to recruit skilled manpower at craft level from the labour market.
- Providing secondary school leavers/graduates with training at the craft level. The training emphasizes the development of technical skills in close cooperation with employers in the development of the apprenticeship programme.

The central concept is *theory through practice* , thus, the training is interwoven, offering training at the institute as well as training on the job (dual training system).

The training at VOCTIM offers courses in Woodwork; Building and Construction; Electrical Engineering-craft; Mechanical Engineering-craft; Automotive Engineering-craft; Secretrial Studies; and Business Administration. Secretarial Studies and Business Administration are considered commercial courses hence, housed in the commercial department whereas the other remaining courses are considered technical courses accommodated in the various technical departments. Commercial courses have a training duration of three years with the second year being on-the-job training. Technical courses, on the other hand, are four years in duration, two of which are at the Institute. Completion of training is to the level Government Trade Test Grade II.

### *Swaziland College of Technology*

The Swaziland College of Technology (SCOT) is the second largest tertiary/post-secondary institution in the country. With considerable adaptation in the recent past to meet the changing needs of the labour market, the College offers technicians and craft courses. The College consists of the following departments/programmes (Swaziland college of Technology, Prospectus, 1992) :

- Biomedical Engineering programme
- Department of Engineering and Science
- Department of Commercial and Hotel and Catering Studies
- Department of Construction
- Department of Teacher Training and Curriculum Development.

A further breakdown of the courses offered and enrollment is given in Table 5. The College targets secondary and high school graduates with little or no prospects for admission into a university. It offers vocational and technical craft and technician levels of programmes with Junior Certificate (grade 10) and ordinary level of the University of Cambridge (grade 12) admission requirements, respectively.

Table 5 : **Enrollments at SCOT by Department, 1987-1992**

| Department | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|
| Mechanical | 43 | 59 | 35 | 19 | 56 | 48 |
| Electrical | 65 | 63 | 61 | 89 | 74 | 78 |
| Automotive | 114 | 103 | 113 | 70 | 101 | 101 |
| Construction | 47 | 157 | 103 | 101 | 156 | 124 |
| Hotel Catering | 21 | 24 | 22 | 23 | 24 | 24 |
| Commercial | 123 | 153 | 136 | 157 | 170 | 161 |
| Teacher Training | 4 | 59 | 79 | 92 | 96 | 126 |
| Woodwork | 26 | 18 | 12 | 2 | 6 | 15 |
| **Total** | **443** | **636** | **561** | **553** | **683** | **677** |

*Source : Economic Planning Office, 1993*

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In addition to providing other departments with Communication Skills courses and assisting them in their curriculum development activities, the Teacher Training and Curriculum Development Department is home for Secondary Teacher Diploma programmes for prospective commercial and technical teachers. But programmes, for entrance, require a good pass at the Ordinary level of the University of Cambridge (6 passes at O-level). These teacher education programmes are three years in duration.

Commercial Studies and Technical Studies are two practical subjects, in addition to Agriculture and Home Economics, that are part of the secondary/high school curriculum. With the launching of pre-vocational/vocational education in the secondary/high schools of Swaziland, the teacher education programme at SCOT will need to change in both content and approach to reflect a vocational orientation. The current teacher education programme is the traditional, conventional approach to teaching a practical subject.

### *University of Swaziland*

The University of Swaziland, Faculty of Agriculture offers a one-year Post-diploma Certificate in Pre-Vocational Agriculture, in addition to other academic programmes (see Table 6) to train Pre-Vocationl Agriculture (PVA) teachers. This in-service course for teachers of the existing "Modern Agriculture" at the secondary school who already hold a Diploma in Agricultural Education and a minimum of two years of teaching experience, is to enable such teachers to teach a pre-vocational agriculture curriculum at the six pilot secondary/high schools.

Table 6 : **University of Swaziland Student Enrollment 1992/93-1995/96**

| Faculty | 1992/93 | 1993/94 | 1994/95 | 1995/96 |
|---|---|---|---|---|
| Agriculture | 373 | 277 | 287 | 314 |
| Education | 165 | 182 | 200 | 220 |
| Humanities | 252 | 295 | 295 | 334 |
| Science | 298 | 300 | 300 | 300 |
| Social Science | 773 | 940 | 1001 | 1143 |
| **Total** | **1730** | **1960** | **2083** | **2311** |

*Source : Economic Planning Office, 1993*

Unlike Modern Agriculture, a programme that has been in existene in the school system for the last 20 years and whose aim was to create a better appreciation and understanding of agriculture among high school students, PVA has some potential for providing the possibility of self-employment for the school leaver. The Pre-Vocational Agriculture project which was launched in 1990 in six high schools has a home-based project component. The home-based projects which are undertaken by high school students involve raising of vegetables and small livestock (chickens) on a commercial basis. These enterprises, it is hoped, will be continued by the students upon high school graduation/completion; the project, which was funded by the European Community (EC), provided for the introduction of PVA in nine schools, but only six schools were ultimately included in the project.

One of the achievements of the project is the production of a modular school curriculum for grades 11 and 12. This curriculum affords students the acquisition of practical agricultural skills which lean more towards vocational agriculture, but still not vocational in content, delivery, and evaluation.

Cited (Brewin, 1993) as the most complex and controversial componet of PVA was the home-based project concept considered to be fundamental to the success of PVA. According to the evaluation reports, home-based projects were found to be expensive to initiate, and demanding a lot of time for adequate guidance/supervision on the part of the teacher. The report also pointed out that there was great need to prepare students for an encounter with real life. Only in this manner can students prepare themselves to establish enterprises which they would be able to continue after high school. Observed and noted in the report as major constraints on the home-based project concept were access to productive land as well as being able to use that land as collateral, and access to credit for these young people.

Alongside the Pre-Vocational Agriculture teacher education programme, the Faculty of Agriculture offers teacher education programmes in Agricultural Education and Home Economics at both diploma and degree levels. The content of, and approaches employed in, these programmes are traditional and conventional to teaching a practical subject. With the launching of a full-fledged vocational and technical education in grades 8 to 12, it is anticipated that the teacher education programmes in Agriculture and Home Economics will be revised to reflect vocational technical teacher education programms in content, delivery system, and evaluation procedures.

### *Mpaka Vocational Training Centre*

The Centre, which is situated on the same grounds with Mpaka High School, was established in 1984 with technical assistance from the Canadian International Development Agency (CIDA) Mpaka Vocational Training Centre offers vocational training in the following trades : Cabinet-making, Clothing and textiles, Motor mechanics, Block laying and concreting, Welding and fabrication.

In addition to the trade subjects listed above, trainees take supporting subjects which are : Technical English, Technical drawing, Physical science, Auto-electricity.

All the trade courses, except clothing and textiles, are operated for City and Guilds accreditation. The programme of study in each of these trades extends for a duration of two years. Entry requirements are that trainees must be below 24 years of age, and must have passed the Junior Certificate (Grade 10) and both the written and verbal interviews. The maximum number of trainees admitted in each trade area does not exceed 15, and the total current enrollment (1993) is 86, with 9 of these being females. For City and Guilds accreditation examinations, the Centre uses the facilities at the Swaziland College of Technology (SCOT). Accreditation is at part 1 craft level. However, at the end of the programme of study, trainees are examined in both the trade subjects (theory and practical) and supporting subjects. Upon successful completion, and passing the examination, the trainees are awarded a Certificate by the Ministry of Education with the trade area specification.

Mpaka Vocational Training Centre has undergone curriculum development changes. In 1988, the Ministry of Eduation invited the Government of Canada, through the Canadian International Development Agency (CIDA) to conduct an evaluation of the programme. The end product was the development of a competency-based training system with a new name, "Pre-Vocational" replacing "Vocational". The newly developed pre-vocational programme had the following objectives (CIDA/WUSC Consultants, 1988):

- To develop a systematic approach to skill training.
- To provide students, enrolled in the Swaziland High School System, with an opportunity to acquire skill training, which may lead to self-employment, employment or entry into Vocational Training Institutions.
- To implement, in association with industry and institutions, a comprehensive student record of achievement, of skills and knowledge associated with a particular trade.
- To utilize the student's record of achievement as a method of certification with a trade.
- To utilize the DACUM Skill Profile as a means to establish a direct link with the City and Guilds Certification system for each trade area.

Though the competency-based training system with competency profiles (a document running into several hundreds of pages, now lying idle) was developed under the new name "Mpaka Pre-Vocational High School curriculum Development Project", with technical assistance from CIDA, it was never implemented (Dlamini, 1993, Personal interview). Instead, the old curriculum and programme established in 1984 were allowed by the Ministry of Education to continue. Mpaka Vocational Training Center also faces an "identity" problem with respect to its name. There appears to be lack of consensus on whether Mpaka has a "pre-Vocational" or "Vocational" programme.

Mpaka Vocational Training Center faces constraints and some of the major ones are given below (Dlamini, 1993, Personal interview):

- Mpaka faces an "identity" problem which may need a delineation of the use of the terms" "Pre-Vocational" and "Vocational".
- Advancing to Part II of the craft level at SCOT for Mpaka graduates is constrained by limited facilities at SCOT. SCOT is the only institution in the country that offers Part

I craft level courses for all vocational training centers in Swaziland, including SCOT's own graduates.

- Mpaka vocational/trade graduates have difficulty getting jobs as the programme is geared more towards wage employment than self-employment.
- The administrative structure at Mpaka High School and Mpaka Vocational Training Centre is such that the headmaster (Principal) of the High School is also the head of the Vocational Training Centre. The Centre has features (components) of a tertiary institution making it different from the general/academic education characteristic of the high school.

### *Swaziland National Handicraft Training Center*

The Centre was established in 1974 to provide formal and nonformal handicraft technical training, and to create an awareness to young and adult Swazis of opportunities for wage and self-employment. The target population for the Centre consists of school leavers and men/women living in rural areas who desire to acquire handicraft skills. Admission of school leavers for the long term training programme of 10 months (one year), requires that they be post-primary and preferably having taken technical subjects at school (Mngomezulu, 1993, personal interview). Total enrollment in 1990/91 was 29, which is about average. The Centre receives technical assistance from the Government of the Republic of China through the Chinese Handicraft Technical Cooperation, and is a partner with the Government of Swaziland, through the Ministry of commerce and Industry. All costs at the Centrre are paid for by these two governments, including tuition and fees. The Centre has residential facilities for their students. The full time courses offered at the Center which extend for one year at level I - craft are (Swaziland National Handicraft Training Centre, 1993) : Home craft and clothing design, Wood carving, Stone carving, Leather craft, Ceramic, Metal work, Fine art, Dressing and fashion design.

Students who do well in the level I - craft programme proceed to level II in the second year. Students with good passes at the Junior Certificate level (grade 10) and ordinary level (grade 12) are encouraged to enroll in the second year of the advanced courses. Upon successful completion of the course of study, students are awarded a certificate.

The Centre also offers "General Hobby Courses" for rural producer groups which extend for a period of not more than a month for each course; the courses are (Swaziland National Handicraft Training Centre, 1993) : Wood carving, Stone carving, Basket weaving, Tapestry weaving, School uniform sewing, Jewelry, Macrame knotting, Industrial machinery use, New table mats design, Traditional clay pot moulding.

Rural handicraft development, yet another activity of the Centre is a training programme designed for men/women living in the rural areas who are craft producers. Rural craft producers are brought in for short courses/workshops of under a month in duration. Courses are designed for beginners and advanced groups.

## ADULT/YOUTH NON-FORMAL VOCATIONAL AND TECHNICAL EDUCATION

### *Background*

In 1974 the Ministry of Education developed nonformal vocational programmes to serve out-of-school youths and adults. In respect of policy measures and institutional reforms, the purpose of adult/youth and non-formal education is to provide an opportunity to those who were unable to avail themselves of formal educational opportunities. The objective is to provide vocational training, along with basic literacy and numeracy skills, so that each individual can participate and contribute more effectively to his/her well-being, and to society. Such adult/youth and non formal vocational technical education is conducted on a nonformal basis through programmes offered by Rural Education Centers, School of Appropriate Farm Technology, Manzini Industrial Training Centre, to name a few; the following comprise some of the major adult/youth nonformal vocational and technical education training centres.

### *Manzini Industrial Training Centre-Emakhonweni*

As a result of the pressing need for vocational and technical skills training as an alternative form of education, Manzini Industrial Training Centre (MITC) was established with the aim of giving its trainees useful and practical skills in a trade or craft which may help them find a job upon completion. The MITC provides skills training for unemployed youth between the ages of 18 and 25 years. These are out-of-school youths who are at risk. Fundamental to the programme is the acquisition of basic vocational skills which will enable a young person to earn his/her own living whether by-self or waged employment.

In most of the courses offered at the Centre, upon completion of the two year course in basic skills, the trainees take the relevant Swaziland Government Trade Test-Grade III with the intention of going on to government Trade Test level-Grade II. This enables those who have not had the opportunity to complete high school (grade 12) to obtain a qualification which is recognized to pay purposes, in the wage employment sector. However, for those trainees whose desire is to become self-employed, they can apply for placement in the Business Management Extention Programme (BMEP), a one year course which offers facilities and training, under the "sheltered workshop concept," to prospective entrepreneurs.

The MITC has an enrollment of over 200 trainees receiving skills training in 13 areas. Agriculture, Sewing, and Upholstery are one year courses in duration whereas Building, Carpentry, Electrical, Metal Work, Motor Mechanics, Plumbing, Printing, Panel Beating, Small Engine Repair, and Spray painting are two years in duration. The approach employed in the training utilizes a combination of on- the-job training and theory lectures. Remaining as the principal training approach is "Training through production" (Manzini industrial Training Center, Annual Report 1990/91)

### *Business Management Extension Programme*

In 1986 the management of Manzini Industrial training Center (MITC) established the Business Management Extension Programme (BMEP). BMEP is an indigenous small enterprise development project set up to combat the problem of unemployed youth who have already acquired vocational technical skills. With a grant from United States Agency for International Development (USAID), an administration building, warehouse, and eight workshops were built. BMEP is a unique institution in Swaziland that fills a specific niche : training and technical assistance for small and micro-businesses and the development of new enterprises (Gamedze, 1993, Personal interview).

BMEP's mission is to promote small enterprise development by providing trade and business skills training, individual business consultancy, and financial assistance to persons who are matured, have job experience and vocational skills, work for themselves full-time, and exhibit entrepreneurial traits. The mission statement contributes to the goal of increasing employment generated by Swazi-owned and/or managed section of the economy and expand the Swazi-owned or managed small business sector. (Gamedze, 1993, Personal interview).

The primary goal of BMEP is to assist its clients in transforming income generating activities into small business enterprises which are operated as viable economic entities. In doing so, BMEP seeks to improve its clients' ability to produce quality products/services and to effectively manage their business activities.

BMEP is governed by a Board of Directors ; however the day to day operations are the responsibility of the Director assisted by a programme manager responsible for training and extension, and a finance manager who oversees the function of the organisation and administration of the loan scheme.

BMEP extension officers are serving a total of 94 clients. They provide business assistance to 47 clients who also have received loans, 16 clients who are receiving business assistance only, and 31 clients who are in the assessment phase. BMEP is providing business assistance to 7 tenants in the BMEP "sheltered" workshops (Gamedze, 1993).

BMEP has established relationships and linkages with other organizations that are involved in some kind of economic business activities, and therefore identified areas of specific need for BMEP's assistance. BMEP has formed strong linkages with other organisations involved in both urban and rural economic/business activities. These include among others : Women in Development (WID), Rural Education Centres (REC), Swaziland Farmers' Development Foundation (SFDF). BMEP has established good relationships with financial institutions (e.g. commercial banks) in which their representatives participate in BMEP training sessions and workshops as resource persons (Gamedze, 1993).

### *Nhlangano Agricultural Skills Training Centre*

The Nhlangano Agricultural Skills Training Centre is an institution with an agricultural focus but supported by four other technical training programmes, namely Carpentry, Building and Construction, Motor Mechanics, and Metal Work. The Centre had its first intake in 1992/93. When the Centre is in full swing, a business management programme to develop entepreneurial skill will be put in place. Aimed at the youth usually referred to as "street kids" who are at risk, which includes the under-privileged, the unemployed, the educationally and socially disadvantaged, and school drop-outs; the Nhlangano Agricultural Skills Training Centre (NASTC) has given the youth of Swaziland another lease of life (Malan, 1992). This recently constructed skills training centre offers training over a duration of two years.

Modeled after the Manzini Industrial Training Centre (MITC), the Nhlangano Agricultural Skills Training Centre (NASTC) has the objective of training people toward self-emploment or earning a wage in the agricultural sector of the economy. The establishment of such a centre that provides "on-the-job training" in Swaziland is of significance in that it plays a major role in promoting self-sufficiency among young people. On the other hand, the underprivileged young persons, those with limited formal education, are catered for in so far as skill acquisition is concerned (the Swazi Observer, 1992).

Table 7 : **Manzini Industrial Training Centre Enrollment, 1990/91**

| **Courses** | **N° OF TRAINEES** | |
|---|---|---|
| | **Male** | **Female** |
| Agriculture | 9 | 7 |
| Building | 28 | 0 |
| Carpentry | 21 | 0 |
| Electrical Repairs | 10 | 0 |
| Metal Work | 20 | 0 |
| Motor Mechanics | 21 | 1 |
| Panel Beating/spray Painting | 9 | 0 |
| Plumbing | 6 | 0 |
| Printing | 4 | 5 |
| Sewing | 0 | 28 |
| Upholstery | 5 | 3 |
| Upgrading Trainees to Trade Test` | 133 | 44 |
| Grade II level | 14 | 0 |
| **Total** | **147** | **44** |

### *School of Appropriate Farm Technology*

The School of Appropriate Farm Technology (SAFT) is a nonformal and vocational agriculture school that targets secondary/high school leavers and drop-outs who cannot proceed to formal post-secondary education for one reason or another. The aim of SAFT is to provide high school leavers wih relevant vocational agricultural skills and experiences to enable them to increase agricultural production at home in their local communities, and also earn an income from sales of produce (Sibisi, 1981). The school leavers catered to by this School are those with little or no prospect of getting a job in the formal labor sector. This is a rapidly growing segment of the population of unemployed youth who may soon dominate the total population in numerical terms (Cousins, 1983).

Entrants to the School need a minimum of education in the sense that they are expected to have completed primary school (Grade VIII), at least. However, those responsible for admissions have stressed motivation toward farming as one major requirement; the enrollment of the School averages 20-25 students, the majority of whom are boys. The age range of students is 18-25 years. The School has a capacity to enroll 40 students. Although the applications may range from 100 to 200 and admission may approximate the full capacity of 40 students, after the pre-entry course of two weeks duration, students drop-out as they experience difficulty coping with the practical demands of the course.

### *Rural Education Centres*

In pursuance of the policy on the improvement of the quality of life and the general standard of living of the rural people, the Government of Swaziland established eight Rural Education Centres in 1978. Aiming at improving the socio-economic status of the rural people in Swaziland, the rural Education Centres were established with the following specific objectives (Ministry of Education):

- to provide formal schooling to rural youths, and non-formal instruction to adults and unemployed school leavers.
- to instruct in vocational education through training in appropriate skills which may lead to self-employment and self-reliance.
- to assess needs and initiate projects; to coordinate services, resources, and activities of Government and Non-Governmental Organisations involved in rural development.
- to serve as a community resource center where educational, economic and social activities may be developed and focused providing facilities that may be used for non-formal education purposes.

Seven of the Rural Education Centres (RECs) were built at secondary schools whereas the eigth was built at a primary (elementary) school. In practice, REC programames have primarily served rural women, especially in training of skills for income generation. The direct beneficiaries, in the main, have been rural women, and also some men, and school leavers, who enter vocational training courses and participate in community projects (Ministry of Education, 1988).

*Bosco Skills Centre*

Bosco Skills Centre is a Youth Enterprise Scheme for Self-Employment with the goal of (a) providing suitable workshop space for the development of small businesses, and (b) offering suitable training in trades and business skills primarily for those neglected and forgotten and at risk young people who wish to be self-employed. The small business person (the experienced entrepreneur) joins the Skills Centre to operate and improve his/her business, and for the use of the Skills Centre's Facilities, he/she makes a contribution by training a maximum of three young persons (trainees) for self-employment over a two year period. In addition to the training provided by the experiened entrepreneur, the trainee business person attends afternoon classes in basic Mathematics, English and Business management Skills. Mathematics and English are each taught two hours a week whereas, Business Management Skills is taught one hour a week by the Business Management Extension Programme (BMEP) (McDonnell, personal Interview).

The Skills Center has 60 small business trainees for its first group of intake who undergo vocational skills training under 21 experienced entrepreneurs. The trainees, who must be 18 years upon admission, are given three months to decide whether this kind of vocational training is suitable for them, and during this period they also work in close cooperation with the Centre's Training Coordinator. The admission process entails interviews conducted by the experienced entrepreneurs who, select three young trainee business persons to train. Once admitted, the trainee receives E10.00 (about US$3.30) a week to cover off-pocket expenses drawn from the trainees fund to which the experienced entrepreneur, for operating his/her own business at the Center, has made a contribution as part of the agreement to use the Skills Centre workshop and facilities. The fee for one year is E150.00 (about US$50.00) payable in three installments of E.50.00 (US$16.66) by the trainee business person (McDonnell, 1993).

The Skills Centre has eight workshops, and offers vocational skill training for self-employment in the following areas : Motor mechanics, Auto electrical, Panel beating and spray painting, Upholstery, Carpentry, Welding/metal work, Plumbing, Dressmaking and tailoring, Sewing, Pottery, Refrigeration repair, Radio and T.V. repair, Printing, Hairdressing.

Upon joining the Skills Centre the experienced entrepreneur takes on the following financial commitments : Contribution to the cost of electricity, Contribution to the cost of water, Contribution to the salary of the show/display room manager, Contribution to a trainee fund, Payment for telephone use, Payment for transport use.

Currently each experiened entrepreneur makes an agreed contribution of E165.00 (about US$55.00) a month to cover the above costs. The amount to be paid for the above costs is established by the Executive of the Skills Centre Management Committee which reports to the Bosco Center Board, the top policy making body.

Unlike the Manzini Training Centre or the Nhlangano Agricultural Skills Training Center (NASTC) whose target population group are school leavers with a Junior Certificate (grade 10) or there about, Bosco Skills Center reaches out for the young people with much less formal education who have no hope of anything else. They constitute the very bottom population group of young people with very little schooling. They are educationally deprived, socio-economically disadvantaged and "are at risk of not achieving the goals of education, acquiring the knowledge, skills and dispositions to become productive members of society" (Natriello, McDill, & Pallas, 1990, p. 8). They comprise the majority of the young and unemployed whose hope for making a living lies in self-employment since their formal schooling leaves them with little or no prospect of getting a job in the formal labour sector of the economy.

## VOCATIONAL SPECIAL NEEDS EDUCATION

### *Background*

Provision of vocational and technical education opportunities to special needs learners is supported by economic reasons. "It is more cost effective to educate special needs students than to provide high cost public support for these individuals" (Sarkees & Scott, 1986, p. 1). However, barriers including attitudinal and physical obstacles, have prevented the participation of special needs learners in regular school programmes and in the workplace. The prejudices often leveled against these individuals have led to a situation whereby they are "treated as surplus citizens who are incapable of becoming contributing and productive members of society" (Sarkees & scott, 1986, p. 3). It is commendable that the Swaziland government is making some attempts to address the plight of these citizens, though much remains to be done beyond just scratching the surface; in the Development Plan (Economic Planning office, 1993/96) "the purpose of the Special Education Programme is to provide educational opportunities for the physically disabled and the mentally handicapped children who, for one reason or another, cannot undertake a normal school programme" (p. 119). A brief description of vocational education for special needs learners is in order at this point.

There are ten special needs categories that vocational education can serve (Sarkees & Scott, 1986, p. 29) : (1) mentally handicapped learners; (2) learners with emotional problems; (3) visually handicapped; (4) hearing-impaired learners; (5) learning disabled learners; (6) speech-impaired learners; (7) health-impaired learners; (8) physically handicapped learners; (9) multi-handicapped learners; and 10) disadvantaged learners. "Disadvantaged learners are individuals (other than handicapped) who are economically or academically disadvantaged and who require special services and assistance to enable them to succeed in vocational education" (p. 29), general education and subsequently in the workplace.

Vocational teachers working with special needs learners need to be in possession of specific competencies. Some of the competency areas include personal-social qualities such as patience, perseverance, openmindedness, adaptability, and pride in their occupational areas as role models. "These qualities are just as important as a good command of the knowledge and skills of an occupation" (Sarkees & Scott, 1986, p. 15). For the vocational teachers to perform these competencies, they need to be assisted through the provision of appropriate resources and services. At the present time, special education in Swaziland is delivered in a number of special schools. The school for the deaf offers formal courses of instruction in general and pre-vocational education. Ekwetsembeni school for the mentally handicapped has constructed pre-vocational education workshops which await installation of facilities and equipment. The Vocational Rehabilitation Centre which is operational offers vocational training for the disabled in several service areas. The following are some of the major schools that instruct in pre-vocational/vocational special needs education.

### *Vocational Rehabilitation Center*

Vocational Rehabilitation Centre (VRC) is a non-formal institution whose dual purpose is to (a) assess the abilities of persons with disabilities in the first phase, and, (b) train such persons in suitable vocational areas (trades) in the second phase. The vocational assessment phase employs various techniques to determine the physical capacities, vocational interests and aptitudes, work habits, job endurance, and other attributes; the Centre admits persons with disabilities who are physically disabled, deaf, dumb, and mentally disabled. Facilities at the Centre do not permit admission of the blind. Persons with disabilities in the working age group are eligible for admission for the purpose of vocational assessment which is then followed by vocational training if the person is deemed trainable (Ministry of Interior, n.d.).

Persons with disabilities are admitted initially in the first phase of vocational assessment for a period of four to six weeks during which time the person's physical capacities and vocational interests are assessed. Case conferences are conducted weekly to determine the person's progress during the vocational assessment phase and the vocational training phase. The duration of vocational skills training is up to two years, depending upon the nature of the craft and residual abilities of the person (Ministry of Interior, n.d.).

The Vocational Rehabilitation Center has facilities for training in the following areas : Agriculture Section, Commercial Section, Electrical Section, Leather Craft Section, Metalwork Section, Sewing and Knitting Section, and Woodwork Section. Total enrollment average 30 resident and non-resident persons (Mavimbela, 1993, personal interview).

Placement and counselling services are also provided by the Centre; upon completion of the vocational skills training, job placement assistance is provided for by the placement service office. Personal adjustment, counseling and follow-up services are also available. For persons who can not be placed immediately, they are taken on by the Centre to work at the Transition Production Workshop to allow them to keep practicing their recently acquired skills ; meanwhile a job is being sought for them by the placement service office of the Centre. Plans are under way for the construction of sheltered workshops for use by graduates of the Vocational Rehabilitation Centre (Mavimbela, 1993, personal interview).

### *Siteki School for the Deaf*

Siteki School for the Deaf (persons who are deaf) has an enrollment of 105 students, 50 girls and 55 boys. Admission to this primary (elementary) school (Grades 1-7) requires that the students undergo testing to establish if they are deaf or normal (Gilbert, 1993, personal interview). Students are admitted on the premises that they need special education because they are deaf. Those who are deaf but are considered to be able to cope in a normal school are not admitted. The school has residential facilities and all the students are residents.

For purposes of accommodating vocational needs of persons who are deaf, the School offers pre-vocational subjects in Carpentry, Needlework, and Agriculture. Home Economics and Keyboarding are underway. These subjects are offered in addition to the general/academic subjects (Gilbert, 1993, personal interview).

The school has 16 teachers who are all certified to teach in "normal"/"regular" school, and 11 of them are certified to teach persons who are deaf. Prior to receiving their nine months formal training in Malawi, and upon joining the faculty at the School, the teachers undergo an in-service, in-house teacher training after classes in the afternoon of selected weekdays. They are further expected to work for a minimum of two years before they are sent to malawi for formal training in teaching persons who are deaf (Gilbert, 1993, personal interview).

Upon successful completion of grade 7 at this School, students who desire to continue with pre-vocational subjects spend an additional year at the School specializing only in pre-vocational subjects of their choice. After completion of the additional one year, students proceed to Ekululameni Adult Rehabilitation Centre at St. Joseph's Mission for further vocational training.

### *Ekululameni Adult Rehabilitation Center*

Ekulalemi Adult Rehabilitation Centre at St Joseph's Mission provides vocational training with residential facilities for the handicapped. The training departments consist of (Swaziland National Society for the Handicapped, 1987/88) : Carpentry, Grasswork and Basketry, Shoe Repair, Tapestry, Sewing, Handicraft for the Blind and Fencemaking, Domestic Skills.

The major Production Units are Carpentry, Tapestry and handicarft. These units engage in small scale enterpreneurial activites for commercial production.

## CONSTRAINTS ON VOCATIONAL AND TECHNICAL EDUCATION

In this document thus far, we attempted to narrate and share with the reader data from research, commissioned studies, and personal long interviews pertaining to the role that vocational and technical education can take, and the major impact it can make on the economic development of Swaziland. As manifested in the document, perhaps the most compelling pressure on the Government of Swaziland to exercise educational reform and restructuring in favour of vocational and technical education in the last 10 years is the unpreparedness of non-college bound youth for the wage and no wage labour market. Sustainable economic growth is an impossibility if there is no adequate and skilled labour pool for business and industry. In a situation where the industrial base is limited (like in Swaziland), possession of vocational and entrepreneurial skills become relevant and critical in respect of noncollege bound high school graduates, unemployed "educated" youth, and dropouts.

Further reshaping and restructuring of vocational and technical education to enhance economic development will require changes in existing educational policies and structures. However, there are constraints on vocational and technical education that restrict its contribution to economic development.

- Swaziland formal school education system is experiencing high repeat and dropout rates. Dropping out tends to occur at an early stage of general education before students have reached a point of acquisition of literacy, numeracy, and vocational skills (if offered at all) adequate for initial job entry into the labour market, or be self-employed. The lower the grade level at which students drop out, the less likely are the acquired basic skills (general and vocational) retained by the learner. Among other reasons contributing and central to the high rate of dropping out, is the problem of relevance of the formal schooling to the needs of students.
- The Swaziland education system is experiencing high costs of delivery of formal general education with a relatively high Government recurrent budget allocation and expenditure. About 35% of the 1991/92 recurrent budget was allocated to education (Economic Planning Office, 1993). A greater proportion of this budget goes to formal general education with far less, and disproportionate attention given, to nonformal, out-of-school vocational and technical education.
- Educational planning and manpower needs remain unsynchronized. The discrepancy between formal employment opportunities and the number of school leavers is an indication that planning for the educational system does not take into account the relatively small size of the formal labour market economy in proportion to the fast growing population and the need to develop alternative programmes of study.

- Career counselling and development services enhance sustainable economic growth by providing, among other things, services needed to assist vocational technical students or any other persons in making the transition from school to employment. These services are constrained by:
  1. Lack of national data bank and knowledge on available occupations ;
  2. Unavailability of school-to-work transition programmes and services at both secondary and postsecondary institutions ; and
  3. Lack of integration of school-based and work-based learning.
- The primary and secondary school curriculum places emphasis on general education at the expense of vocational technical education and entrepreneurship education, and yet only a limited proportion of the population benefits from tertiary education at the university, and vocational/technical colleges of higher learning.
- Vocational students are in a better position to undertake entrepreneurial activities for purposes of self-employment and thus, stimulate the economy. But lack of access to credit for small-scale business/enterprises poses a major constraint for potential entrepreneurs. Small scale entrepreneurs have difficulty obtaining credit primarily because they cannot meet requirements for collateral.
- The sector of the economy that offers opportunities for productive self-employment is agriculture and rural-based industries. The lack of access to land poses a problem for small business. Swazi Nation Land is communally owned and thus cannot be used as collateral. Ownership of this land rests with the King, who holds it in trust for the Nation. In that case, there is no security of tenure. A policy to expand self-employment opportunities in the rural areas needs to be developed to overcome this constraint.
- Occupation and education linkages are fragmented, unstructured, uncoordinated, and informal. The purpose of such linkages is to enhance school performance and workforce preparation. For education to be relevant to the needs of individuals and society, small business development/enterprises and industry, and education should be strengthened. Appropriate models that link schooling and workforce preparation are non-existent, thus, a need exists to formulate them.
- The majority of female youth are still doing what has traditionally been considered "women's work" and this poses a major constraint particularly in respect of the fact that small entrepreneurs are primarily women. Women need to be fully informed about any and all jobs in which they may be interested including nontraditional careers to females.
- Lack of curriculum and structural articulation from secondary/high school pre-vocational/vocational education to tertiary/postsecondary vocational technical education programmes breeds a mismatch. Much of the school and

postsecondary/college curriculum and instructional delivery in prevocational/vocational education is disconnected and hence does not flow.

- Lack of curriculum and organizational/structural articulation from craft level tertiary institutions to technician level institutions poses major constraints to students/trainees wishing to acquire advanced vocational technical skills.
- The quality of vocational technical education programmes is somewhat uneven and incoherent. There is lack of coherent programmes as a standard. Swaziland needs to establish content and performance standards that benchmark what secondary and tertiary/postsecondary students/trainees should possess as they move from school, postsecondary to the workplace. These standards must be mastery/competency-based/peformance-based and the determination of which should reflect what prospective employers (business and industry) and small entrepreneurs consider relevant to Swaziland economic and social needs.
- Non-formal vocational education is not given the priority it deserves to redress the shortcomings of formal education/schooling as the latter remains out of touch with postschool realities. Formal and nonformal vocational technical education are neither complimentary nor articulated/linked.

## SUGGESTIONS/RECOMMENDATIONS FOR THE IMPROVEMENT OF VOCATIONAL AND TECHNICAL EDUCATION

Suggestions for the improvement of vocational and technical education in Swaziland, that take into consideration the prevailing socio-economic environment, enhance economic development, and are in line with the rapid evolution of technology, are outlined below :

### *Recommendations*

- Measures must be taken toward the improvement of the internal and external efficiencies of the education system and to reduce the high repeat and drop-out rates which are a waste of limited economic resources. Education must be relevant to the needs of students as an incentive for them to have a gainful purpose for staying in school rather than dropping out.
- Educational planning and national manpower needs ought to be synchronized. Measures have to be taken to narrow the discrepancy between the content and delivery of the educational service and wage employment and self-employment/entrepreneurship opportunities for high school, vocational and technical centres, and college graduates.
- Measures must be taken toward the development and implementation of career counseling and development services centers for school-to-work transition of secondary and postsecondary students. In addition to career counseling services, the centres could

provide career assessment and job placement. Furthermore, there is a need for the integration of school-based and work-based learning through interagency collaboration and cooperative planning with both public and private agencies.

- Measures need to be taken to introduce and integrate vocational technical education and entreprneurship education in both the formal school system and non-formal education sectors. Hence, teacher training colleges and the University must reform their teacher education programmes to enable teacher education graduates to deliver an academic and vocational/entrepreneurship integrated education school programme.
- While ensuring that Title Deed Land is used efficiently, Swazi Nation Land needs to be developed to its full potential. Agriculturally useful land should be made available to young people (prospective entrepreneurs ; may be as settlement schemes silimar to the "sheltered workshop concept" for trade and industrial entrepreneurs) for commercial agricultural enterprises.
- Credit schemes for small-scale enterprises and young entrepreneurs should be expanded. Swaziland has a small and limited formal/wage economic base and labour market, and thus sustainable economic growth lies in encouraging small entreprenuerial economic activities for self-employment.
- Articulation of the vocational technical education curricula and delivery systems at the secondary and post-secondary levels has to be initiated and implemented. This may require competency-based education (CBE) performance-based education (PBE) as a means of determining mastery of critical competencies for progression to the next grade level and finally for job entry into the labour market.
- Women need to be fully integrated into occupations traditionally male-dominated. Women in Swaziland constitute a major work force that occupy small enterpreneurial economic activities. Rather unfortunately, these economic activities are traditionally female-dominated because of sex-stereotyping, and are now reaching the saturation point.
- For the improvement of the quality of vocational technical education both in terms of content and delivery, there is a need for the establishment of national performance standards as benchmarks for skills/competencies that must be possessed by students/trainees in the different vocational and technical areas/trades levels. These performances standards must reflect Swaziland economic needs as articulated by prospective employers and small entrepreneurs (for those aspiring to be self-employed).
- Formal rapid change and application of technologies driven by international competition will continue to have significant effects on the vocational and technical education skills required for the workplace. Since technology is universally and

instantaneously transportable across national and international boundaries, countries with less industralized economies (e.g. Swaziland), should restructure their delivery of vocational and technical education programmes by incorporating state-of-the-art technologies to meet the present and future workplace needs.

Policy measures and resource allocations ought to be considered such that : (1) vocational education special needs learners as well as disadvantaged learners are educated in the "least restrictive" environment to meet individual educational and related needs, (2) efforts are increased toward the preparation of vocational special needs students and disadvantaged students for employment.

The recommendations made in this document lead to the conclusion that measures must be taken to introduce legislation on School-to-Employment Opportunities. The legislation will provide appropriate funding and related services and resources for vocational and technical education to enhance the economy. The legislation will have to reflect interagency collaboration and cooperation, in which case the sponsors of the legislation would be the Ministries of Economic Planning, Education, Labour and Public Service, and Commerce and Industry. Participation of the private industry sector of the economy in the drafting of the legislation is critical.

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# CHAPTER 13

# TECHNICAL AND VOCATIONAL EDUCATION IN UGANDA

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## SOCIO-ECONOMIC CONDITIONS IN UGANDA

Uganda has a population of 16.6 million and a growth rate of 2.5% per annum for the period 1980-1990. Analysis of the structure of the population suggests a high dependency ratio with about 48% of the population under 15 years of age and 20 % being children under 5 years. About 90% of the population live in rural areas depending mainly on subsistene agriculture. Agriculture is the backbone of the economy and accounts for about 70% of GDP and over 95% of merchandise exports. It provides employment for about 80% of the population and is the economic base for much of the manufacturing and service industries. Indeed, in the early 1970s Uganda's economy was booming with the country experiencing a budget surplus.

Following years of upheaval and destruction in Uganda, the National Resistance Movement (NRM) Government inherited an economy in ruins and dis-array when it assumed office in 1986. The guiding principle of economic policy put in place then was that of "building an independent, integrated, self-sustaining national economy". A number of strategies and policies were put in place namely : Emergency Relief and Rehabilitation Plan which provided urgently needed relief to war ravaged areas. Another phase commenced in May 1987 with the launching of the Rehabilitation and Development Plan (RDP) 1987/88 - 1990/91. (RDP has now been rolled over to cover the period 1991/92 - 1994/95). These measures have now been backed up by macro-economic strategies and medium term sectoral strategy of government (1991-95).

Although significant progress has been made in the rehabilitation of the economy since 1986, various problems still remain. These include, external trade imbalance, inadequate domestic savings, poor private and public sector management, inadequate technological know-how, shallow financial markets etc.

Over the last one and a half decades, insecurity and poor economic managemet has led to major adverse structural change in the Uganda economy. Non-monetary GDP rose from 30% to 46% of total GDP between 1970 and 1988, while GDP fell by 11% between 1972 and 1986. Because of population increase, GDP per person fell by more than 40%. Between 1970 and 1988 the share of coffee (the major cash crop) in total exports went from 58% to 97%. While total Government revenue in 1970 was 16.8% of GDP, it is now only about 7%.

Developments in the balance of payments during 1991/92 were marked by a reduction in the overall deficit from US$108.2 million in 1990/91 to US$109.9 million in 1991/92, an improvement in the foreign exchange reserves position and poor export performance, especially in the coffee subsector (main cash crop) which accounts for about 67% of total export receipts.

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Developments in external trade during the period 1991/92 were characterised by an improvement in the visible trade balance. The balance on the visible trade account declined from US$407.3 million in 1990/91 to US$259.9m in 1991/92. This decline was mainly due to lower imports.

At the outset of 1991/92 total external public sector debt amounted to US$2.6 million including principle and interest arrears of US$372 million. This total was equivalent to over 100% of GDP. A debt strategy has been adopted by Government in order to relieve the burden on Government through negotiations with the lenders while at the same time preventing any further increase in outstanding debts.

In 1991/92 the economy of Uganda grew by 4.1% despite some problems such as : an acute widespread drought, lower prices of coffee than anticipated and slower disbursements of balance of payments support from donors. Previous trends show that the economy grew by 7.6% in 1988, 7.3% in 1989 and 4.0% in 1990. Inflation fell from 243% in 1987/88 to 29% in 1990/91 as measured by Kampala Consumer Price Index.

Government budgets have as a result continued to be deficit budgets due to a number of constraints outlined above. The 1992/93 budget was no exception. Overall, Shs 703.8 billion (approx. US$563million) was required to finance Government undertakings. Of this £287.9 billion was to be raised locally i.e. 40.9% leaving a deficit of £415.9 billion to be financed from external sources.

The socio-economic conditions in the country can be viewed from the perspective of individual household survival as well as Government ability to provide development and social services. The trend since 1970s has been one of deterioration in both aspects. Any economic desegregation of indigenous households whether in the rural or urban location today must take account of the fact that, with a few notable or perhaps notorious exceptions, all are poorer than they were two decades ago, thus limiting access to education for the majority of the children. In terms of two variable of household survival strategy in the rural area, namely : ownership of land and the means to utilize it effectively, very large proportion of rural households falls into the lowest poverty level. This is ameliorated to only a very limited extent by some subsidiary sources of income. The practical limitations imposed by the national economic and political system, particularly in the marketing sector, together with the very small size of household resources and small scale of individual enterprises, place real limitation on the range of the choices open to the rural household head.

The situation regarding salary and wage earners in the public or even private employment is not any better. The long period of political and economic instability has taken a big toll. Salaries and incentives have become eroded by the persistent high rate of inflation.

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At Government level severe economic constraints arose out of low revenue collections, budgetary deficits and high rates of inflation. The unfavourable situation prevailing during the 1991/92 financial year, where there was a shortfall in domestic revenue collections by 11%, export revenues were much lower than import bill and inflation rate stood at 63%, has largely remained unsolved. The country continues to rely heavily on external assistance in form of loan or grants despite the already heavy debt burden. Out of 704 billion shillings of Government spending project for 1992/93 only 288 billion shillings will be raised from Uganda. The rest is expected in terms of loan or grants, thus aggravating the country's debt burden.

Against this background of increasing financial problems, the Government still faces an overwhelming task of reconstruction and rehabilitation of the various sectors of its economy including education.

## MANPOWER AND EMPLOYMENT

At independence in 1962, Uganda had one of the most prosperous economies in sub-Saharan Africa. The Gross Domestic Product was increasing twice as much as the growth of the labour force with both the industrial and services sector growing significantly. The overall employment situation improved greatly such that between 1966-1973, the recorded increase in employment was 32 percent, which is quite high.

The employment level was highest in 1971 and this was the year when the military took over power from the civilian government. At that time, most of the senior posts of managers, professionals and technicians were occupied by foreigners (mostly Asians and some Europeans). There was an acute shortage of skilled Ugandans in the country. As many as 74 per cent of the professional employees were non-Ugandans.

In 1972, Amin declared the so-called "Economic War" which led to the decline of the economy. The unplanned departure of a large number of Asians who had dominated the industrial and commercial activities and who had supplied most of professional, technical and skilled manpower, created a big gap and the economy started to collapse. The unstable political conditions and repression led to a large number of skilled Ugandan personnel to flee the country and those who went out for training decided to remain outside the country.

The management of industries and business of the departed Asians was largely given to existing as well as newly created parastatals which had little experience and skilled manpower to man them. Others were allocated to politically favoured Ugandans with no experience at all in business management. In addition to lack of business acumen and shortage of trained manpower, the lack of raw materials, and spare parts and improper maintenane of equipment worsened the situation in all industries and businesses.

This had an adverse impact on the employment situation in the private sector while the employment in the public sctor increased especially in the civil service. The Public Sector

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then became the only refuge for the absorption of the unemployed as well as the new entrants to the labour force. Even the parastatal organisations bloated payrolls.

The main manpower problem during this period was the acute shortage of skilled manpower due to the departure of Asians as well as some skilled Ugandans. Vacancies for specialised skills were not easy to fill from both internal and external sources. Non-Ugandans were not attracted to fill those posts due to the insecurity at the time save for a few international experts.

The problem of school leavers intensified during this period especially after the physical expansion of the educational system of the 1960s. The educational system which was a model of the British type continued to produce students with a bias towards white collar jobs with little contribution towards development although Government policy had emphasized transformation of the country side. The educational system over-supplied youngsters with purely academic types of education while shortages of specialised practical training persisted.

In 1977, a survey conducted by the Ministry of Planning and Economic Development revealed an acute shortage of professionals and technicians. It also revealed that the shortage was existing side by side with under-utilization of the skills available. Most of the professionals were working below capacity.

A noticeable manpower phenomenon which was existing during the time was migration of labour from the formal sector to the informal sector (*Mafutu Mingi*) as it was termed. This was due to the erosion of real wages by the high inflation. Wages and returns from self-employment activities in the informal sector had risen more than in the formal sector.

This resulted into :

- Salary earners in the formal sector resorting to other informal activities to supplement their incomes resulting in decline of labour productivity.
- School leavers and other unemployed persons who were unable to get employment in the formal sector found increased refuge in the informal sector. Thus the informal sector temporarily solved the problem of open unemployment.

However, smuggling and other illegal activities increase. By 1980, the Ugandan skilled workers were demoralized completely due to low salaries as compared to the cost of living which had gone up tremendously. The productivity of the workers deteriorated while at the same time unemployment became rampant.

## MANPOWER PLANNING, FORECASTING AND RELATED PROBLEMS IN TECHNICAL EDUCATION

In practice in Uganda, enrollment in institutions of technical and higher education does not correspond to the country's manpower needs. The enrollment mechanism used is one where each institution receives its enrollment targets from the Ministry of Eduation and Sports. In the absence of any valid indication of manpower demand, the targets are set to the previous year's enrollment and to available training capacity. Thus the output of the educational and training system is unlikely to be in harmony with the demand for manpower in any category of skills.

A practical difficulty is that Uganda's manpower planning does not provide a reliable framework for tackling the country's manpower training needs. Historically, it has never focused on training, but has been preoccupied with the expansion of training institutions to cater for increased population. Since the mid-1970s, due partly to problems of methodology and data, and due to the central importance of finance in determining the actual development of education and training, manpower planning has become a residual bureaucratic activity disconnected from the country's overall development planning.

The last comprehensive study of Uganda's National Manpower was carried out in 1988. This Manpower Survey Report produced projections up to the year 1991. According to the Report of the Survey, there were 21 vocational schools, 77 technical schools and institutes and 37 business schools and institutes with a total annual output of about 5000. Of the total number of institutions, 5 vocational centres and 52 technical schools and institutes are government-aided. The survey reveals that from 1983 to 1987 (inclusive), vocational schools graduated 3795, technical institutions graduated 6011 while commercial institutions graduated 11,831.

The survey shows that the manufacturing sector alone employed 3.6 per cent of the administrative, managerial and professionals enumerated ; 6.6 per cent of the technicians and associate professionals personnel and 12.7 per cent of the skilled workers. It was projected that the number of 5000 artisans, technicians and craftsmen presently produced by Ugandan institutions would hardly satisfy the demand by the economy specially during the period of rehabilitation and reconstruction.

A recent UNDP project INT/89/T02 - Strengthening of Endogenous Capacities in Science and Technology through National Policy Dialogues, carried out in 1993 on Assessment of Human Resources and Institutional Requirements for Science and Technology. This study revealed that there are about 250 engineers and scientists per million of population in Uganda, compared to 1,400 per million of population in developed countries. The shortage of skills in this category is therefore critical.

Forecasts to the year 2000 indicate that many countries in this region including Uganda will continue to have rapid population growth. Labour supply will also grow rapidly. In the face of a relatively slow-growing demand for labour, this will lead to a substantial rise in unemployment. Since market conditions are likely to remain highly unpredictable because of the uncertainty of changes in demand and the certainty of technological change, it is advisable to put emphasis on flexibility and the creation of a broad-based productive capability, rather than actual committed manpower capacity with narrowly specified skills. In the area of technological education and training special efforts are to be directed towards providing favourable conditions for the growth of new entrepreneurial skills to take advantage of new emerging technologies.

The implications of these new technologies indicate that, unless vigorous steps are taken immediately to adapt our human resources development to the new realities, the development opportunities offered by modern science and technology will be lost.

### *Employment and Labour Market Situation*

The formal sector jobs are becoming increasingly limited in relation to the number of persons with technical credentials, seeking employment in these areas. This mismatch is creating a challenge to technical training institutions to produce job makers with entrepreneurial skills.

Although there is still open unemployment in the formal sector, the present Government policy of retrenchment and curbing redundancy of the workforce is reducing underemployment, which has hitherto been very rampant.

The failure of our education system to produce graduates who can generate employment for themselves has been registered with great concern. Counteracting this situation requires a new orientation in training of technical personnel, where the world of work will have to be intimately linked with educational institutions.

## AN OVERVIEW OF FORMAL EDUCATION IN UGANDA

### *Goals and Aims of Education*

The basic premise for designing an educational system in Uganda recognizes the fundamental fact that educational development itself is an index of national development. Considering that national development aims at ensuring a meaningful life, the mandate is obvious that it will be achieved not only in terms of material growth, but through the realisation of spiritual values ; ensuring the greatest number of individuals the opportunity to realise a meaningful life and providing the process for this, makes it possible to achieve true national development.

Achieving essential goals of education is facilitated by continual innovation of educational policy and practice, the success of which is largely dependent upon the coordination of education with other streams of development.

The goal of education for economic development is considered in the context of human resources development and the search for new knowledge and technology. Indeed, over the past two decades, emphasis has been put on the desire to lay a firm ground for scientific and technological training. In this respect, therefore, modern methods and facilities have to be introduced and educational institutions rehabilitated. For a country to be able to invest, to create and to adapt new knowledge, it must develop good scientific and technological teaching at all levels as well as research and development infrastructure. In order to guide the educational, social and economic development of the country, the Government of Uganda emphasizes the principles of national unity, self-reliance and social justice.

### *Structure of Education in Uganda*

The basic structure of formal education in Uganda consists of four levels, namely : Primary, Lower Secondary ('0' level), Upper Secondary ('A' level) and University. The seven-year duration of the primary level is followed by a lower secondary of four years. However, the duration of these two levels is under review, and an eight-year Primary education cycle is being recommended. At the third level, post '0' level courses are offered in 'A' level secondary schools and in Technical Institutes and various Teachers Colleges; they are generally run for two years. The fourth level includes higher Institutions of learning such as the Universities, the Uganda Polytechnic, the Uganda Technical Colleges, the National Teachers' Colleges, the National College of Business Studies and the Institute of Teacher Education. With minor variations, the typical length of the courses is three years at the University and two years at the other institutions of higher learning. In summary the four levels form a single track structure of 7-4-2-3 years, with minor variations in length of particular courses after primary education (Fig. 1in Annex). The proposed new structure currently under debate will be an 8 - 3 - 2 - 3 system.

## TECHNICAL AND VOCATIONAL EDUCATION SYSTEM IN UGANDA

Uganda is predominantly an agricultural country and may remain so for decades. Hence integrated rural development which is production, is a catalyst to this development in that it develops and improves the local community and builds up a reserve of skills for local enterprises and for self employment.

The aims and objectives of Technical and Vocational Education in Uganda are :

i ) to stimulate intellectual and technical growth of students in order to make them productive members of the community ; and

i i ) to produce craftsmen, technicians and other skilled manpower to meet the demands of industry, agriculture, commerce and other technical services as well as the teaching of technical and vocational subjects.

Based upon these broad aims, the programmes designed for vocational education have the following objectives :

- To facilitate interpretation, application and translation of basic knowledge and understanding of fundamental facts and principles of scientific processes and techniques to be able to produce and use tools and labour-saving devices for productive work ;

- To inculcate an appreciation of labour, and the environment as a resource base ;
- To impart skills necessary for the protection, utilization and conservation of environmental heritage ;
- To refine and consolidate indigenous artistic and technological skills in order to produce things of aesthetic and cultural value ;
- To consolidate, synthesize and apply the ability to use the head, the heart and the hands towards innovations, modernization and improvement in the quality of life ; and
- To broaden and increase technological awareness and the capacity of the learner to engage in productive activities for becoming self-reliant.

Uganda's development is linked with rural development by which, it is clear that it cannot come about without technical change. The policy of government is to strengthen the role played by technical and vocational education in national development by :

- rehabilitating the existing infrastructure ;
- restructuring the sub-sector and
- reviewing curricula to align it along production-based outlook.

### *Technical Education*

The current system of formal technical education consists of Technical Schools, Technical Institutes, Technical Colleges, Uganda Polytechnic Kyambogo, Uganda Colleges of Commerce and National College of Business Studies. There are three levels at which technical education is offered. These are craft, technician and engineer levels. Craft training is offered in Technical schools and Institutes and Technician training in Technical Colleges and Polytechnic ; while engineers are trained at the Faculty of Technology, Makerere University (see Table 1)

There are 24 Government aided Technical Schools currently operating under the Ministry of Education and these include three farm schools. The main objetive is mainly to train rural craftsmen (artisans). Technical schools offer three-year full time courses to primary seven school leavers leading to the award of Uganda Junior Technical Certificate (UJTC). Courses offered include Carpentry and Joinery, Blocklaying and Concrete Practice, Tailoring and Tropical Agriculture. Present enrollment is approximately 5000 students approximately 10% of which are females. Parallel to technical schools, secondary schools offer general education, technical education which consist of metalwork, woodwork, agriculture, technical drawing electricity and basic electronics, home economics and commerce, as part of the general curriculum. The demand for technical education at this level is very high as indicated by a growing number of privately run Technical Schools.

At the level of technical institutes, there are 30 Government aided Technical Institutes which admit candidates with Uganda Certificate of Education ('O' level) with passes in Maths, Physics, Chemistry and English. Holders of UJTC with adequate field experience also qualify to join the institutes. At this level two years craft courses are offered in Carpentry and Joinery, Block-laying and Concrete Practice, Tailoring and Cutting, Motor Vehicle Mechanics, Plumbing, Pottery, Leather work and Agriculture, Mechanics and Electrical Installation. Successful candidates are awarded Uganda Craft Certificate (Part I). Advanced Craft Certificate is also offered by some Institutes. Besides Technical Institutes, craftsmen at this level are also trained by the Uganda Technical Colleges and Polytechnic. The total estimated enrolment of craftsmen is 6000.

Technician training is carried out by four Uganda Technical Colleges and the Uganda Polytechnic, Kyambogo (UPK). Although these institutions still train craftsmen, technical colleges are supposed to concentrate on training of Ordinary Diploma Technicians while UPK concentrate on Higher Diploma Technicians and also upgrade to training of technologists for degrees although this is not yet the case. Technical Colleges and UPK recruit 'A' level candidates for two year programmes leading to the award of Ordinary Diploma in Electrical Engineering, Mechanical Engineering, Building and Civil Engineering. The Polytechnic in addition offers Industrial Ceramics, Science Laboratory Technics and Architectural Draughtsmanship. Higher Diplomas are offered after two year field experience to holders of Ordinary Diploma in Electrical Engineering, Mechanical Engineering and Civil Engineering. The Polytechnic also runs a one year certificate course in Technical Teacher Training. At ordinary diploma level, the total estimated enrolment is 2000 while a Higher Diploma is 100 students.

Besides the pure technical subjects, the five Uganda Colleges of Commerce and the National College of Business Studies (NCBS) train business technicians. These institutions have an estimated enrollment of 4000 students. The institutions admit holders of Uganda Advanced Certificate of Education and offer both full time and part-time courses. The courses are generally two years full time for ordinary diploma courses in business studies, secretarial studies, accounting, stenography, catering and marketing. In addition, NCES offers a three-year Higher Diploma course in marketing. The demand for business education is very high compared to the available institutions as indicated by the growing privately owned business institutions as well (See Table 2).

### *Vocational Training*

The recognition of formal vocational training started with the establishment of Artisanal Training Organizations in 1950s where the objective was to develop, operate and promote an efficient, system of Industrial Vocational training in the country. Prior to this, vocational activities were so informal and disorganized that a negative attitude had developed, to the extent that vocational education was treated as reserved to academic failures. In order to accelerate vocational training in the country, Uganda established a Directorate of Industrial Training in the Minitry of Labour in 1974.

The Directorate of Industrial Training (DIT) operate five training centres. It is responsible for Industrial Training, apprenticeship training, trade testing and certification, skill upgrading and updating courses. Its aims and objectives are to develop, operate and promote an effective and efficient system of Industrial Training on a national and local basis for continued and sustained manpower development in Uganda. The five Government vocational training centres are : Nakwa Vocational Training Institute, Lugogo Vocational Centre, YMCA - Jinja, IDA - Jinja and Masulta Vocational Centre. Apart from these five established centres, a number of vocational schools run on private basis, exist in the country. Under the Directorate, candidates are required to take Trade Test II (Craftsman trade test) and then after 2 years, can sit for Trade Test I or Master Craftsman Trade Test. The Industrial Training Council established by decree in 1974 is to ensure quality, efficiency and effectiveness of the training programmes.

Preparation of course curricula is done by a team of selected technician experts and is based on the analysis of the trade or skill to be taught. This includes, initial level, final level, major activities of the trade skills, technical knowhow, duration of course, qualities required and examination standards. The DIT on the other hand identifies the training needs of individuals and groups in the field, conducts occupational surveys and job analysis and uses the information to organize and conduct courses according to specific needs at their centres. The Vocational Training Courses concentrate on traditional Mechanical, Civil and Electrical occupations.

The main problems faced by vocational institutions are : lack of adequate funding for the training programmes. In the majority of cases, equipments are old and obsolete while in some cases they require spare parts and repairs.

### *Technical Teachers Training*

In 1972, the Government of Uganda started a department of technical teacher education at the Uganda Technical College. This Department which is now the School of Education at Uganda Polytechnic, Kyambogo is charged with the responsibility of training technical teachers required for technical schools and institutes. The annual output is about 30, far below the required number. The Institute of Teacher Education Kyambogo (ITEK) prepares teachers for general technical education in secondary schools. Under the ADB II Education Project, facilities will be provided for an output of about 120 technical teachers per year.

At the vocational level, there are no instructor training programmes in Uganda. Those wishing to become qualified instructors have to go abroad for training. Because of lack of manpower in this category, there is no institutional set-up for the development of training programmes and the necessary related instructional support materials. The course content is always left to individual centres to formulate.

## INSTITUTIONAL CONSTRAINTS AND FUTURE PROSPECTS

In Uganda, education at all levels has become too academic and theoretically oriented. Consequently, the students completing general primary, secondary and even higher education, are hardly capable of coping with practical problems and doing things with their own hands. There has been too much concentration on academic learning and passing examinations to the neglect of knowledge and skills needed to solve life problems. Technical educational programmes which are presently offered run counter to the necessity of meeting individual differences of interest, ability, aptitude and other personal attributes ; and yet the quality of educational programmes should be measured in proportion to the extent to which they are responsive to individual needs.

While a large number of students want to acquire basic knowledge and skills from early stages of primary education, there are still negative attitudes to technical and vocational carrers. The reasons advanced for this kind of thinking include :

- Technical and vocational education is being considered as a second-rate education compared to general education, (although this is slowly changing in Uganda).
- Technical and vocational education is being generally terminal type of education with no vertical mobility and access to higher education.
- There exists great disparity between technical and vocational education and general education with no formalised linkages.
- Students completing technical vocational courses are ill-equiped for self-employment.

Between 1970 and 1985, a large number of well educated and well-trained people left the country and this reduced the availability of needed skills for the country's rehabilitation and reconstruction process. But the increasing population and its expectation has created social pressure demands for the expansion of education system. Between 1980 - 1984, there was unplanned expansion where many technical institutions were started and existing ones renamed to acquire higher status without the corresponding inputs.

The lack of foreign exchange and to some extent lack of adequate local funds has significantly affected the proper training in these institutions. Most of the institutions were greatly handicapped due to lack of adequate financial resources. In general the problems facing the institutions include low staff remuneration, lack of trained teachers, lack of staff development, lack of textbooks and instructional materials (especially for technical schools and institutes), inadequate funding, weak administrative structures, lack of equipment, tools and materials, lack of staff accommodation, dilapidated and in some cases inadequate

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buildings in terms of classrooms, library, workshops, laboratories and lack of appropriate curriculum.

The uncertainty in technical and training objectives is associated with almost all Government programmes. Diversified schools have a dual purpose to prepare students for future studies and to equip them with employable skills. Neither is achieved satisfactorily. The post-primary centres have as their main objective to equip primary school leavers with employable skills relevant to local needs. However, the programmes are not geared to these needs and most of those who succeed leave their communities.

Weaknesses in planning and coordination are evident throughout the country's education and training system. Most critical is that development directives are missing. A number of existing delivery mechanisms for technical and vocational education have overlapping terms of reference and unclear task delineation.

The rapid expansion which was followed by increased enrollment was not accompanied by corresponding inputs such as trained technical teachers, adequate physical facilities, scholastic materials, tools and equipment and a favourable learning environment. Consequently, the quality of education, particularly technical education, has been steadily declining. Noting that technical, business and vocational institutions play a vital role in training of the badly needed technicians and artisans for the rehabilitation and development of the nation, the present Government of Uganda set forth measures to correct this trend.

In July 1987, the Government set up an Education Policy Review Commission to extensively review the education programmes in the country with a view to making education more relevant to the needs of society and an effective tool for development. The Commission submitted its Report in January 1989, which led to a Government White Paper on Education of April, 1992. The White Paper agreed with the following major recommendations on technical and vocational education : integration of technical with business education; restructuring of technical and vocational education to cater for vocationalization from primary to tertiary levels of education; re-equipping of technical and vocational education institutions with tools, equipment, scholastic materials and the training of technical teachers.

The Government has further initiated a number of studies in order to assess the requirements and revamp technial education in the country. These include : Strengthening of Scientific and Technical Teacher Education, 1990; Pre-Investment Study in Technical and Business Education in Uganda, 1990; five year Education Sector Investment Programme 1992/93 - 1996/97; and Uganda Technological Education and Training Study, 1991. These efforts have so far yielded some success. The Government has received assistance from the African Development Bank in form of a loan (ADB II to Education Sector) as a follow up to the study of strengthening of Scientific and Technical Teacher Education while the Directorate of Industrial Training of the Ministry of Labour and Social Affairs has also received assistance from the Germany, GTZ. The Ministry of Education and Sports has also provided technical equipment and tools to Technical Colleges and UPK.

## TECHNICAL AND VOCATIONAL EDUCATION CURRICULUM DEVELOPMENT

Curriculum development in Uganda is centralized and is the responsibility of the National Curriculum Development Centre (NCDC) which was established in 1974. NCDC is mandated to play a pivotal role in improving the quality of education and re-designing the courses at various levels other than the Universities to meet the goals and objectives of education. It is also to carry out research and evaluation of curriculum and textbooks. The centre however lacks the necessary physical, human and financial resources to carry out its mandate. Indeed with new educational policies in place. NCDC is already over loaded with curriculum review for the vocationalization of the primary cycle alone. This has inevitably led to little attention being paid to other levels and more so to post primary technical and vocational education to the extent that the curricula in place is basically that inherited in 1960s and early 1970s from City and Guild of London.

To the slight extent that any syllabus has been revised, the process has been deficient in that the identification of content has rarely been accompanied by pilot testing and revision. The practice is for NCDC in conjunction with Central Inspectorate of Ministry of Education & Sports to work through subject specialists panels to develop the curriculum. However, complementing materials such as instructors' guides, teachers training materials etc. have been lacking. Moreover, what is in the syllabus has often been included not because of its relevance to educational goals but because of amenability to existing assessment techniques.

### *Current Issues on Curriculum Development*

- The wars and civil strife during the seventies and eighties have taken their toll and led to the neglect of educational institutions and erosion in the quality of education at all levels ;
- Despite the expansion that took place in the number of educational institutions, corresponding resources were not made available for the provision of necessary facilities, instructional materials and trained teachers for the fast growing student population ;
- Disparities between rural and urban areas in the provision of educational facilities have increased over the years ;
- Changes in curricula have not been introduced in technical and vocational education to date ;

- The curricula, both in primary and secondary schools, at present do not cater for the social and economic needs of the country. They do not adequately equip the individuals to become productive and self-reliant ;
- The education system is dominated by examination at all stages without any provision for assessment of other objectives of the curriculum, such as promotion of moral values, practical skills, and participation in social and cultural activities.

*Curriculum Planning and Development in Technical and Vocational Education*

- This is a dynamic process and must respond both to the needs of the individual and to the technical requirements of the job, as well as the changes in job patterns caused by technological or socio-economic changes ;
- A multi-disciplinary approach/effort is necessary involving professional groups representatives of Industry and general educators as well as the teachers of technical and vocational education ;
- Planning and development should be defined centrally that specific needs of individual industries should be taken into account ;
- Curriculum for each skilled trade should provide in-service (on the job) course towards the end of the training period aimed at preparing the trainee for specific job requirements;
- Research and evaluation of curricula in technical and vocational education must be a continuous process.

Uganda Polytechnic, Kyambogo (UPK) has embarked on the exercise of reviewing, diversifying and updating its curricula in technical and vocational education to reflect the polytechnical nature of the institution. Essentially the revised curricula will cover a broad spectrum of studies from certificate to Bachelor of Technology levels, and also take into account the changes in job patterns caused by scientific and technological development.

## NON-FORMAL TECHNICAL AND VOCATIONAL EDUCATION

Non-formal or out-of-school technical and vocational education is taken to be an organized educational activity outside the formal system. Non-formal training centres in Uganda have been very effective in establishing linkages with employers, especially in the areas of financing and labour market information. These centres, by design, are inherently better able to offer short courses based upon occupational analysis, and to use part-time instructors from industry of well managed, non-formal training centres, have the demonstrated capacity for flexible response to changing labour market.

Throughout Uganda technical education in the non-formal eduation sector for specific skill development is available through a number of delivery mechansims. These range from industry "on-the-job" training to courses provided by government ministries and private schools and centres.

## EMERGING ISSUES

When the world of work was based mainly on skilled workers and craftsmen, on-the-job training was the only method of training at the time. Since then, mass production techniques have demanded new and different skills in order to satisfy the needs of modern production and service sectors. For example, in the modern sector of manufacturing and services, where production is programmed through automation, the conceptual content of jobs is becoming increasingly high emphasizing the broad general, theoretical competencies and co-operative skills. Consequently, it has been necessary to broaden the role of science and mathematics in technical and vocational education in order to produce a labour force that can adapt quickly and be flexible enough to improve productivity.

Techniques for the modern wage sector are expected to be constantly changing because of technological developments and pressures of international competition to increase productivity and quality while reducing costs. This type of work environment requires employees who can design, operate, and maintain increasingly sophisticated production techniques and equipment. In Uganda, until the formal sector becomes a major factor force in the economy the demand for technicians of this calibre will be limited.

The informal sector of Uganda consists of small entrepreneurs and causal workers involved in a wide array of activities such as craftwork, workshop production, service activities, and commercial ventures. It is anticipated that agricultural products will continue to be the major export commodity of Uganda. Thus, it be assumed that the agricultural and informal economic sectors will be the major source of employment for years to come. It is the large numbers of individuals in these sectors who will require training in the more traditional manual, production, and trade skills.

As long as labour-intensive work has a competitive advantage in the marketplace, then more technologically advanced ways of working requiring relatively large capital investments will not be attractive. In this situation, an informal worker will only profit from training directed towards enhancing the quality and productivity of his/her indigenous work techniques.

Training will, therefore, be specific and refocused on improving the product, rather than on acquiring costly training tools and equipment.

An additional facet of technology is the processing of information, which has been greatly facilitated by the development of computers. Computer literacy is now a common component of elementary education in many developed countries, and an increasing number of secondary schools incorporate computer applications within the most subjects. The

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introduction of computers into the schools was predicated on the anticipated market demands in both the public and private sectors.

While Uganda has yet to reach a stage where the market demand for computer application approaches that existing in developed countries, there is need to provide some basic introductory courses in selected secondary schools and technical institutions as pilot technical programmes. The focus of these programmes would be the development of computer literacy based upon a "hands on" approach in anticipation of the inevitable expansion of computers in the private sector and in technical and vocational education.

## COOPERATION LINKS BETWEEN EDUCATION AND TRAINING INSTITUTIONS AND ENTERPRISES

### *Introduction*

When the world of work was based mainly on skilled workers and craftsmen, on-the-job training was the only method of training and at that time was considered sufficient. The Industrial Revolution and subsequent mass production techniques demanded new and different skills which justified the establishment of specialized education and training institutions in order to satisfy the needs of the modern production and service sectors.

Developments in science and technology and their subsequent effect on production methods and the world of work market demands in the last three to four decades have been more significant than in the past. These developments have placed special emphasis on engineering, technical and vocational education and training. The main objective of this type of training is to reply to students' need to acquire knowledge and skills and behaviourial learning patterns which will be of use in different spheres of economic and social life.

The training encompasses all forms and levels either in educational institutions on the one hand and agricultural, commercial, industrial, service or any other field related to the world of work on the other. We are in fact in the phase of development where research on "education for the world of work" is likely to concentrate on improving the deficiencies of the process or by making a more comprehensive reform of the total system. To achieve this, it is necessary that cooperation be established or further developed and strengthened with enterprises and potential employers.

The effectiveness of the education and training programmes is contingent upon meeting the needs of enterprises. This requirement demands cooperation with business and industry through the creation of a variety of formalized linkages. These linkages will inevitably yield a number of improvements in the preparation of relevant and well qualified graduates. A satisfactory partnership, however, can only exist if the training institutions (suppliers) understand fully the needs of industry (customers) and the client is aware of the constraints under which the suppliers operate. This requires continuous interaction and dialogue between the two partners involved. Cooperation will only continue if the self interest of both parties is satisfied to some degree. An interface for this partnership is therefore a must for mutual benefits and national development.

Given that most technical innovations enter developing countries through changes in enterprises, technical information required for the development of new skills will over time come from these firms. Given the various rehabilitation and development projects currently being undertaken in the country, a number of technologies are being introduced and there is need for skills to operate, upgrade and maintain them.

The establishment of these linkages will inevitably provide a solid basis for : curriculum adjustment and reform, student placement for practical experience, staff exchange (staff development), identification of employment opportunities, execution of joint projects, selecting of part-time instructors and assessing the success of education and training in meeting the requirements of employers.

### *Policies Governing University/Industry Linkages*

Effectiveness of technical and vocational education is contingent upon meeting needs of industries/enterprises. Ideally therefore, these enterprises should also participate in the training of students who are the future workers. Presently formal technical and vocational programmes require students to spend a fraction of their time training in industries before graduation. There is, however, no official policy governing *University/Industry* linkages in the country. Consequently there is no close relationship between technical and vocational education and the economic base. The absence of such relationship gives rise to a fragmented, inefficient and poorly managed delivery system for such education.

Government is in the process of formulating an overall science and technology policy which, among other things, will consider mechanisms for creating and strengthening University/Industry linkages. It is hoped that such linkages can yield a number of improvements in the preparation of well qualified graduates and provide facilities and avenues for instructors to gain industrial experience.

### *Present Status of Cooperation Linkages*

In Uganda today, the existing linkages between training institutions and industry are very weak. In the past, industries used to sponsor their personnel to educational institutions on a block release system and also accept students for Industrial training much more readily. While Industrial Training continues to be offered, a number of constraints have made it very ineffective. A UPK survey of 57 major enterprises in Kampala and Jinja (Uganda's main towns) in March/April 1993 by Hartmann and Manyindo showed that there were only 244 Industrial Training places available. These have to be competed for by all training institutions in the country with a total capacity of over 5000 students of whom about 500 students are from UPK alone. Suffice to say therefore, that the existing links between technical institutions is only partial in form of industrial training and limited industrial tours.

### *Students Industrial Training*

Industrial Training is organized in each of the technical institutions and university through the department of Industrial Training. The main duties being placement and supervision of students during the training. The exercise is normally carried out at the end of each academic year for a duration of about 3 months (usually July - September). The student is after training supposed to write a report to be endorsed by his/her training supervisor in industry for submission to the head of department at college.

### *Mode of Training*

Students carry with them letters of introduction. The students are in most cases assigned to their supervisor for training and are absorbed in the operational process of the enterprises. In a number of organizations, the students are trained through the various sections/departments within the duration of their industrial attachment. During the training, the lecturers from colleges visit the students to assess and discuss the training programmes with the supervisors and the students. Todate however, there has not been any lecturer attachment to industry while at the same time there has been almost no personnel coming from industry to offer part-time teaching and instruction at college/university level. This crucial link and interaction calls for concerted effort as the benefits of such an arrangement are great.

### *Financing of Industrial Training*

Industrial Training is solely financed by Government. Technical Institutions get the equivalent of their capitation grants for the training. At the moment technical colleges get Shs 370/= per student per day which is hardly enough to cover one hot meal estimatd at Shs 700/=. Lecturer's alike get very little funds to enable proper supervision and monitoring of the industrial training.

### *Constraints and Weaknesses*

#### *a) Inadequate places for all students*

Due to the weak nature of industrial base, there is normally not enough places to absorb all the students during industrial training. The reasons for this include the large number of students (all technical institutions and universities) compared to the available opportunities. Industries are also not willing to take on students when they are laying off workers due to low economic activity. This leads to under training and in some cases mismatch in respect to the students discipline. The growth of the industrial sector has not matched with increased student enrolment.

*b) Inadequate allowances*

The allowances given for industrial training are hardly enough to sustain the students. Most industries are willing to take on student on condition that there is no financial obligation (some industries top up the allowances). The student is therefore caught up in dilemma as he can hardly survive on his allowance for the 3 months; these allowances sometimes are released late by Government thus making the whole exercise difficult.

*c) Assessment of industrial training*

Industrial Training while considered as an integral and important part of the student's training does not form part of the overall assessment. This leads to lack of seriousness by students during their training, leading to absenteeism or irregular attendance and often times presenting shoddy industrial training reports.

*d) Negative Attitude to training by industries*

The short commercial focus by industries tend to lead to negative attitude towards long term investment in training.

In general terms therefore, there is need to critically examine various parameters governing the linkages. These are for example, policies, analysis of weaknesses in the relationship, current trends, impact of the current education and training systems and efforts being made to produce quality and relevant graduates, the role each of the social partners (training institutions, enterprises, Government etc. should play in the relationship given the current socio-economic conditions in the country; and areas of cooperation that should be explored, strengthened and sustained. As for teacher training in enterprises, there is currently no such formal relations.

## ISSUES THAT AFFECT COOPERATION LINKS

### *Policy*

There is no coherent and articulated policy governing University/Industry links. Various institutions establish their own operational guidelines, with very inadequate inbuilt assessment procedures.

### *Increased Access for Students' Industrial Training and Study Tours*

In order to facilitate this, there is need for a review of policies governing this particular aspect by the various organisations concerned in order to allow as many students as

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possible to undergo Industrial Training. Industries could allow a certain number of places for each level of cadres every year in their budgets.

### *Lack of Adequate Well Trained Lecturers and Instructors*

The impact of resource constraints on training is felt in the qualifications of the teachers. Good vocational training requires instructors who have technical skills, industrial experience and pedagogical skills. The inability of the system to attract and retain these cadres remains a strong challenge to the system. Exposure of the lecturers to industry in form of attachment and joint projects go a long way in addressing this problem.

### *Weak Information Linkages with Employment*

Improving the match between the size and occupational distribution of employment demand on the one hand, and the volume and content of training on the other, depends crucially on information linkages. Where these linkages are strong and dynamic, pre-employment training can be cost effective. Where they are weak or absent, institutional inertia, compounded by resource weaknesses, lead to routine programmes which are increasingly divorced from employment realities.

Cooperation between training institutions and employers has been difficult to establish in the public training systems. Two fundamental problems lie at the heart of this issue ie. lack of incentives and lack of capability. These operate on both sides of the relationship. Training institutions are accountable to their respective ministries chiefly for routine administration, effectiveness in job placement is not a criterion for budgets or promotions. Second, rigid institution controls on curricula and limited resources make it difficult for systems and institutions to respond to information from employers even for dual training arrangements.

### *Institutional Constraints*

The quality of education and training depends a great deal on the ability of institutions to adjust the content of training to meet changing skill needs. This is especially important in training for strategic occupations that are rapidly changing under the impact of new technology. Sustainable capacity for curriculum development and revision is a characteristic of flexible and high quality training. The rigidities of central curriculum development coupled with lack of adequate resources further restrict institutions from attempting more innovative and flexible approaches to vocational instruction.

### *Inadequate Financing*

Uganda has found it difficult to mobilize the resources necessary to build efficient and sustainable training systems. Little is left over after teachers are paid to improve systems planning and management, to provide professional services needed for effective curriculum adjustment and development, or to respond effectively to new training challenges.

Weak recurrent cost financing also leads to significant deterioration in the base of materials, equipment and facilities needed for practical training. Under such conditions, budget cuts fall most heavily on non-salary operating costs, such as maintenance, spare parts, and consumable materials and supplies. At the extreme, this leads to workshops without functioning equipment and no supplies, training is reduced to lectures and the practical skills component of the curriculum to a large extent disappears.

Training capacity as of now exceeds employment demand and the capacity of Government to provide adequate financing. The result has not only been substantial mismatch between overall supply and demand for skilled labour, and consequent low levels of external efficiency, but also a heavy burden on the scarce resources allocated to training. In order to address this constraint it is proposed that the Industrial Training Act be reviewed to cover both the students training at College as well as the Industrial training. The proposed Industrial Training Fund should with immediate effect be made operational.

## PROPOSAL AND RECOMMENDATIONS FOR STRENGTHENING THE UNIVERSITY/ ENTERPRISES LINKAGES

It is clear that University/Industry partnership is a healthy relation for the development of any country. Cooperation linkages between institutions for technical and vocational education and industries can yield tangible results through :

- exchange of knowledge and know-how ;
- joint undertaking of research and development projects ;
- acquisition by teachers and students of the experience of life in an enterprise ;
- renewal and adaptation of teaching and training programmes to suit production work.

In order to Promote University/Enterprise partnership in the country the following proposals and recommendations are made :

a) There is an urgent need to formulate a coherent and explicit policy on technical and vocational education and its relation to the world of work. This policy should take congnisance of national industrialisation policy that gives medium to long term perspectives.

b) The proposed Industrial Training Act should be reviewed to pave way for the Industrial Training Fund to cover some cost for students training at college and in industry.

c) Strong permanent committees should be set up to constantly review training programmes at college and industry. It is proposed that membership of such committees should comprise of training institutions, industry, Government and relevant professional bodies.

d) Individual training institutions must strengthen and expand the activities of their Industrial Training Offices to include public relations, curriculum development and industrial services and training. These offices should become Industry Liaison Offices and be at the forefront of the University/Enterprise partnership.

e) Training Institutions should be more flexible in their training programmes and open their gates more readily to allow use of their facilities including the provision of continuing education to personnel from industry (at a reasonable fee). Industry should at the same time take advantage to initiate research and development projects which training institutions (staff and students) should be challenged to find solutions for.

f) An in-depth study of successful models of University/Industry partnership in developing economies should be undertaken. A more appropriate model should then be researched and tried out in Uganda on a pilot basis before adaptation nation wide. In this respect, UNESCO and other donor agencies are requested to finance this study.

g) A workshop convened to deliberate on the issues pertaining to linkages and cooperation between institutions for technical and vocational education and enterprises appointed a "Steering Committee" with the following Terms of Reference :

- Follow up the deliberations of the workshop ;
- Work out modalities for establishment of a permanent body (organisation) for promotion of cooperation links ;
- Liaise with government and other relevant bodies in order to avoid duplications ;
- Explore ways and means of funding the activities of the orgaisation ;
- Work out specific objectives of the organisation, composition and mode of operation; and
- Carry out any other activities incidental to the Terms of Referece.

The Steering Committee comprised of membership from Universities and Technical Colleges, Enterprises, Government Departments, the Training Council, Uganda Manufacturers Association, Small Scale Industries Association and the Federation of Uganda Employers.

## CONCLUSION

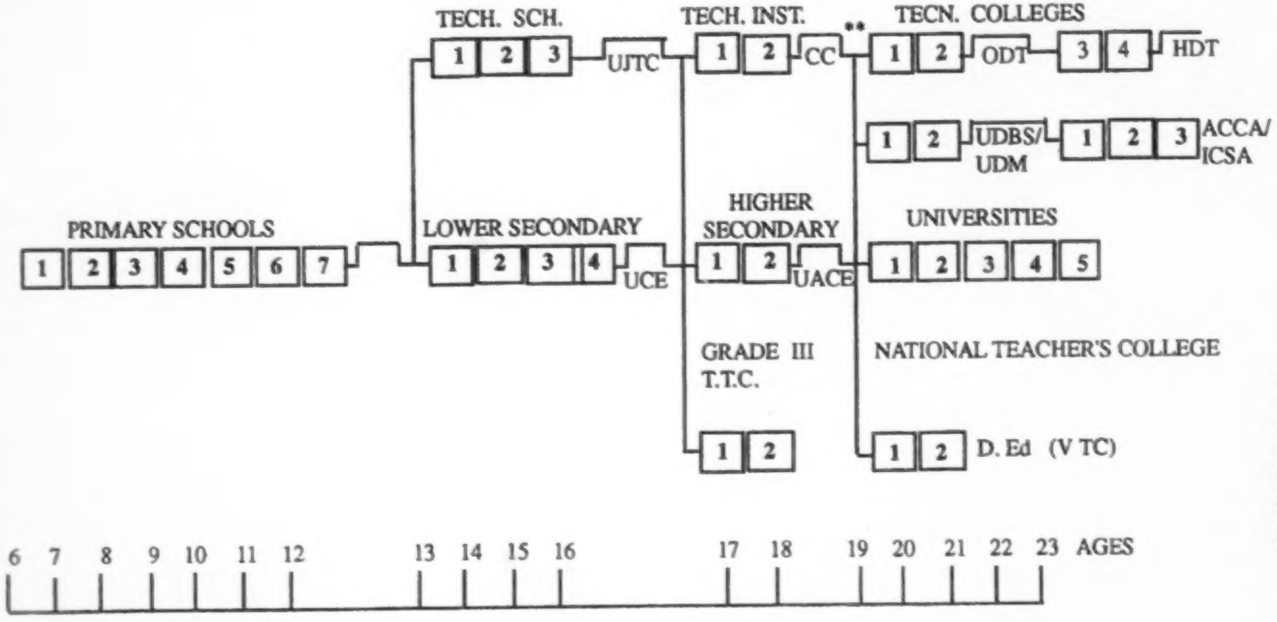
It has been observed by many that for the country's development, there is need to move away from an agriculture based economy (primary production) to an industry-based economy. In Uganda today, forward and backward linkages are being emphasized especially for agro-industries. The way forward is therefore to put in place institutional arrangement that will produce adequate and relevant skills to operate, upgrade and maintain these industries.

Uganda is now at the cross roads and being opened up for domestic and foreign investment. The need for skilled manpower can therefore not be over-emphasized. Education and Training Institutions must therefore cooperate in order to foster the nation's development and be able to survive into the next century. As in the case with much public service provision, isolation from market forces is the main threat to effectiveness and efficiency in public training.

Key constraints on quality and responsiveness must be addressed, chief among them, the inadequate financing, weak information linkages with employment, fragmentation of training systems and constraints at the level of individual organisations. The modalities of cooperation is one major area that need to be exhaustively addressed today so that a sustainable mechanism is put in place for cooperation between Industry, Government and Educational and Training Institutions.

The following section is a report of the Proceedings of a key workshop organised by UNESCO/BREDA to address the modalities of cooperation in TVE in Uganda. The one day's workshop was held at Makarere University in the faculty of Technology on August 19, 1993.

# STRUCTURE OF FORMAL EDUCATION IN UGANDA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**KEY:**

⎍ = Final Examinations

PLE = Primary Leaving Exams
UJTC = Junior Tech. Cert.
UCE = Uganda Cert. of Education
UACE = Uganda Advanced Cert. of Education
OTD = Ordinary Tech. Diploma

III.TC = Grade III teaching Cert.
UDBS = Uganda Dip. in Busness Studies
UDM = Uganda Dip. in Marketing
UCCA = Assoc. of Cert. Cartered Accounting
ICSA = Institute of Cert. Secretary and Administrators
V.TC = Grade V Teaching Certificate
CC = Craft Certificate

** = Successful students go for 1 year industrial experience and back for 1 year for Advanced Craft Cert. followed by another 1 year industrial experience and another full Technological Cert.

# ANNEX

# TERMS OF REFENCE FOR CASE STUDIES

## ANALYSIS OF THE PRESENT SITUATION IN THE COUNTRY

- Economic conditions
- Human resource development
- The existing Technical and Vocational Education system (legislation, management, structures, institutions and articulation with other elements of the educational system, etc.)

## FORECAST OF THE FUTURE SITUATION

- What the country hopes to achieve through an improved technical and vocational education system

## WAYS TO ACHIEVE THE DESIRED FUTURE SITUATION

- Identification of the existing problems
- National policies and innovation measures to promote the further development of technical and vocational education

The ultimate objective of the national contribution should indicate the desired future situation vis-à-vis Technical and Vocational Education in national socio-economic development. In this context it is recomended that the following issues should be included :

i) Strategies to innovate Technical and Vocational Education systems to cope with the changing demands of the labour market caused by national economic development.

ii) Policies to promote close linkages between Technical and Vocational Education institutions and indistries.

iii) Strategies to raise the social status of the entire technical and vocational education system and its graduates.

iv) Approaches to allocate and efficiently utilise the financial resources to support Technical and Vocational Education.

v) Efforts to include entrepreneurial orientation and skills in Technical and Vocational Education.

vi) Measures to improve the quality of teachers and instructors.

vii) Procedures to promote articulation between Technical and Vocational Education and other elements of the educational systems, especially higher education

viii) Ways to improve career guidance and counselling.

ix) Policies to improve the participation of special social groups in Technical and Vocational Education.

x) Development of Technical and Vocational Education in the informal sector.

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